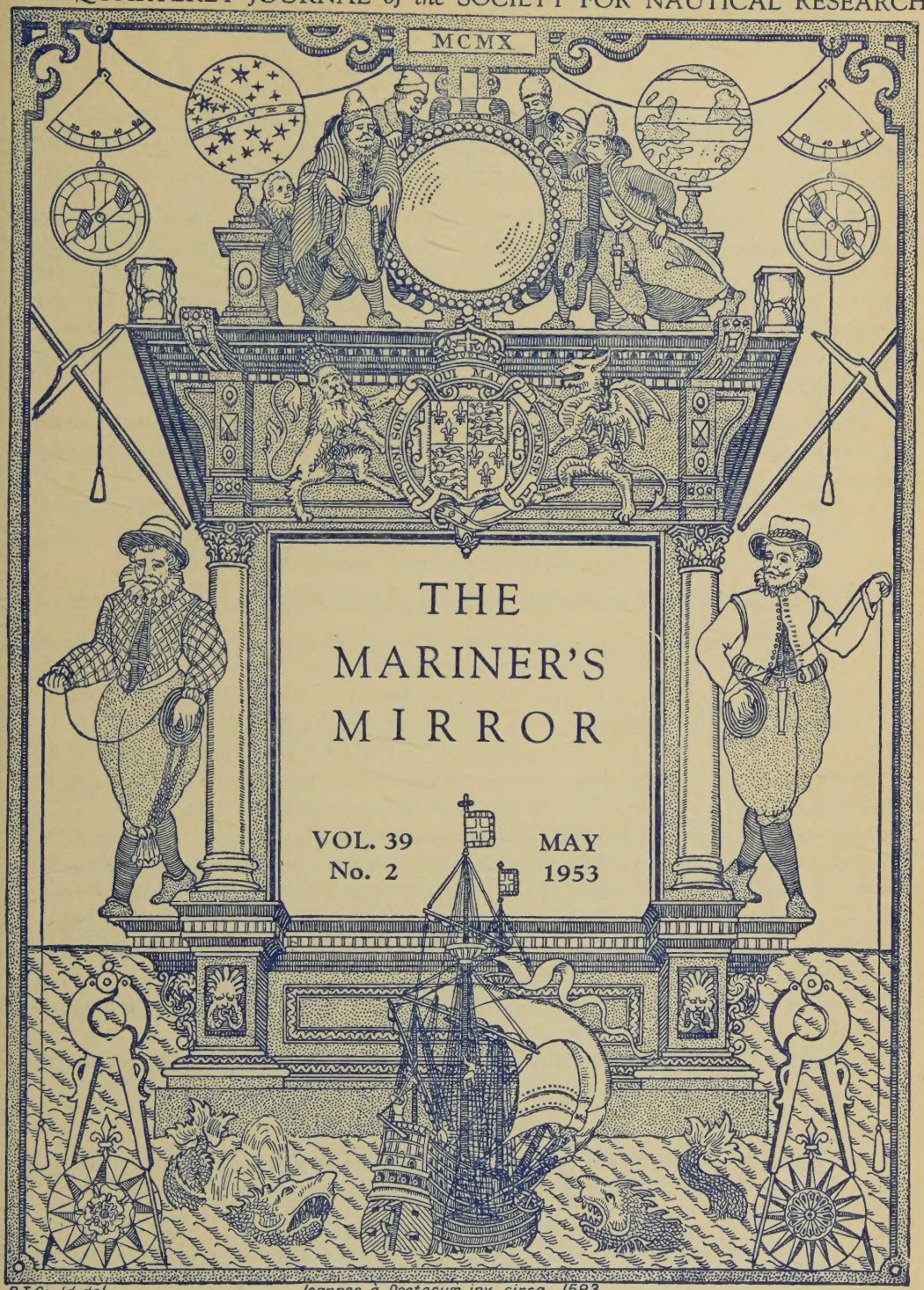
THE QUARTERLY JOURNAL *of the* SOCIETY FOR NAUTICAL RESEARCH



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THE SOCIETY FOR NAUTICAL RESEARCH

FOUNDED 1910

To encourage research into nautical antiquities, into matters relating to seafaring and shipbuilding in all ages and among all nations, into the language and customs of the sea, and into other subjects of nautical interest.

The Society has erected a Monument to the Van de Veldes in St James's, Piccadilly, London; raised £107,000 to save Nelson's Flagship and has superintended the restoration of H.M.S. *VICTORY* to her appearance as at the Battle of Trafalgar; paved the way to the establishment of the National Maritime Museum at Greenwich and the *Victory* Museum at Portsmouth; organized exhibitions of Nelson relics and naval prints, etc.; and issued several periodical publications dealing with nautical archaeology, besides an inexpensive set of official plans (ten in number) for building a model of H.M.S. *Victory*.

The annual subscription of one guinea ($3.00) entitles a member to receive *The Mariner's Mirror* and the Annual Report, and a ticket of admission to H.M.S. *Victory*; to attend the Annual Meetings and the Annual Lectures.

For particulars of membership apply to

THE HON. SECRETARY, SOCIETY FOR NAUTICAL RESEARCH,
NATIONAL MARITIME MUSEUM, GREENWICH, S.E. 10

CONTRIBUTIONS TO *THE MARINER'S MIRROR*

The aim of the Society being to arrive at true conclusions through free discussion, it is distinctly to be understood that the Editor is not held responsible for statements made in the *Journal*.

Contributions and correspondence should be addressed to Commander HILARY P. MEAD, R.N., 4 *Eliot Place, London, S.E.* 3. Although not absolutely essential, it would be of great assistance to the Editor and the Printers if articles, notes, queries, answers and reviews of books could be typed, on one side of the paper, preferably quarto, with double-spacing and with a wide margin. Photographs and line drawings to illustrate contributions are welcomed, but on account of the cost and a shortage of 'art' paper the use of plates has to be somewhat restricted.

Names of ships should be underlined to denote *italics*, and not written within inverted commas.

THE MARINER'S MIRROR MAY BE OBTAINED FROM

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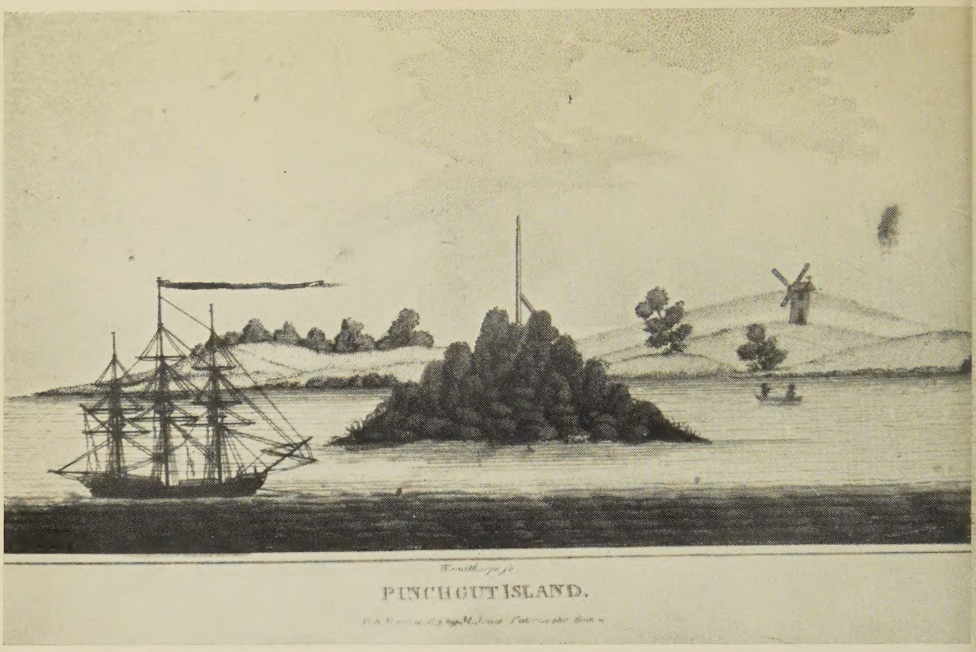
SALE OF BACK NUMBERS

The Mariner's Mirror was published monthly from January 1911 to September 1914, and from July 1919 to December 1923. It has been published quarterly since January 1924. Single copies of the monthly issues, Vols. I to IX, will be sold at 5*s*. each, and the quarterly issues



(*a*)

PINCHGUT ISLAND

About 1800. Reproduced from George Barrington's *Voyage to New South Wales* (published 1810)

(*By courtesy of the Mitchell Library, Sydney*)

(*b*)

FORT DENISON

General view of the fort from the north-west

The MARINER'S MIRROR

WHEREIN MAY BE DISCOVERED HIS

ART, CRAFT & MYSTERY

after the manner of their use in all ages and among all Nations

VOL. 39. NO. 2 May 1953

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COUNCIL NOTICE

The Council of the Society for Nautical Research continue to have in mind the pressing need for a whole Index to the first twenty, twenty-five, or even thirty-five volumes of *The Mariner's Mirror*. Various expectations in this regard have so far not been fulfilled. An announcement, however, may be expected shortly. Meanwhile it is considered that an Index of the current volumes might be compiled and carried forward through the succeeding volumes. The Council invite the voluntary services of any member who is qualified and free to undertake this work. Needless to say, such an offer would be welcomed and much appreciated by all members of the Society. The Council would be willing to defray any reasonable expenses of the compilation, such as the cost of cards and so on. It is thought that the current Indexes might afterwards be combined in batches relative, say, to five volumes and issued to members at a small charge to cover costs.

Any member willing to undertake this valuable and altruistic task is asked to communicate with the Hon. Secretary.

NOTICE

MARITIME EXHIBITION AT IPSWICH

The attention of members is called to the East Coast Maritime Exhibition which is to be opened at the Art Gallery, High Street, Ipswich, on 11 May 1953.

The exhibition is divided into seven sections, each showing a facet of the maritime history of that part of the coast between the Naze and Orfordness, including the ports of Ipswich and Harwich. Sections are devoted to Merchant Vessels, Fishing craft and methods, Shipbuilding and Shipbuilders, the Royal Navy, Charts and Topography, Yachts and Yachting, and Documents and Miscellanea. Each aspect is illustrated from the earliest times to the present day, with models, half-models, plans and paintings, etc.

The exhibition, which will be open every day until 30 May, Sundays included, is organized by the Ipswich Nautical Research Society in conjunction with Ipswich Borough Museums.

An illustrated catalogue can be obtained from Mr Roger Finch, 'Crosstrees', 290 Tuddenham Road, Ipswich.

FORT DENISON, SYDNEY

By John L. Lavett

FORT DENISON, Sydney, occupies a central position in the very busiest part of Port Jackson, commanding not only the approaches to the whole of Sydney's commercial waterfront, but also the heart of the city itself. It is difficult to view the harbour long without growing increasingly aware of its massive Martello tower and general air of grim antiquity. The residents of Sydney have felt its power, and through the years there has grown up around it a tradition that tells of manacled convicts, tortures and horrors too terrible to contemplate. As in so many other cases of popular belief, the truth of the matter is very different, as far as the existing fort is concerned, at any rate.

When Captain Arthur Phillip, R.N., first (and perhaps best) of New South Wales's governors, established his convict settlement in Sydney Cove on 26 January 1788, he found himself beset by numerous problems of a novel and difficult kind. Not least among these was the question of what he was to do with those of his charges who, having failed to leave their anti-social careers of petty theft, drunkenness and insubordination behind them in the Mother Country, bid fair to embarrassing the whole of his administrative organization. On 11 February, therefore, to 'check these enormities' (as the contemporary chronicler Captain David Collins reported)[1] he convened a 'court of criminal judicature' and proceeded to try three apprehended miscreants. Two of these, found guilty of assault and petty theft respectively, were sentenced to lashings, but the third, who was convicted of 'taking some biscuit from another convict' presented a more difficult problem. Obviously, the appropriate sentence was a term in prison. But just where was he to be imprisoned? There were no buildings of any sort on shore as yet. The Governor himself still lived in a tent. However, at a distance of about a mile and a half from the settlement, in the centre of Port Jackson, there stood a small, rocky islet, about 360 ft. long, 120 ft. wide, and 75 ft. in height, sparsely covered with stunted trees, known to the aborigines as *Mattewai* or *Mattenwaya*, translated accurately enough by Phillip as Rock Island or Bare Island. It was here that he determined to maroon his recalcitrant prisoner for a period of seven days. This temporary expedient was in every way satisfactory to the authorities. The necessity of

1 *Account of the English Colony in New South Wales* (1798), Vol. 1, p. 9.

permanent guard was removed and there was little likelihood of the prisoner being able to escape; for the harbour was known to be frequented by sharks, and even if the mainland were reached, it would be difficult to find shelter, particularly as the natives were daily becoming more difficult to cope with. In the months that followed, until a permanent prison was finally established at Parramatta (then Rose-Hill) some miles south of Sydney, a number of convicts were sentenced to the island for varying lengths of time. Provisions being transported to the island only once a week, and even then generally being confined to bread and water, the name Rock Island soon gave way to the more expressive convict appellation of 'Pinch-gut', a term that has survived in general usage to the present day, in preference to the later, more dignified, but less picturesque 'Fort Denison'. In a pamphlet published in 1789, an English officer remarks that 'a rock, at some distance from the shore, is fixed upon as a sort of prison whither offenders are sent, and being exposed to the weather, with no other food than bread, sometimes produces reformation and amendment'.

Pinchgut's last active association with the convict population as a place of punishment occurred in December 1796, when one, Francis Morgan, having been capitally convicted of murder, was hung in chains from a gibbet erected on the highest point of the islet, in the hope that his body would act as a deterrent to others of like mind. In his *Memoirs*, 'General' Joseph Holt, one of the leaders of the Irish rebels in 1798, relates that on 11 January 1800, he entered Port Jackson in the convict ship *Minerva*. 'The first remarkable object I saw', he says, 'was the skeleton of a man, Morgan by name, on a gibbet; he was executed for murder.' Morgan's body, then, must have swung there for at least three years. Even so, the ultimate effect was far otherwise than the authorities had hoped. To the convicts, it was an object of derision; to the natives, an object of superstitious dread, so that (as Collins says)[1] 'they never trusted themselves near him, nor the spot on which he hung, which until this time, had ever been with them a favourite place of resort'.

Already, however, the question of the defence of Port Jackson against possible aggressors was receiving serious consideration. In a letter to the Duke of Portland on 3 January 1800,[2] Captain John Hunter, R.N., second governor of the Colony, wrote:

'No port whatever, my lord, is more capable (with the necessary works and heavy cannon upon its commanding situations) of resisting any attack from the sea; and those situations I cou'd with ease point out to an expert engineer, as far as may be requisite against such an attack; or, indeed, were

1 *Account of the English Colony in New South Wales*, Vol. II, p. 10.
2 Published in *The Historical Records of New South Wales*, Vol. IV.

it even attempted by land, I am as well acquainted with every part of the ground as I am with the depth of water in the ship or boat channels.'

By 1806 the matter had apparently been further considered; for, in his last report prior to being relieved by the notorious Captain Bligh, Governor Philip Gidley King reported[1] that, in addition to certain other works already completed or suggested, 'three guns well served on Pinchgut (with spikes ready) would greatly annoy the approach of Shipping'. But it was half a century before his recommendations came to fruition.

The next reference of interest, and that a prophetic one, occurs in the *Sydney Gazette* of 13 September 1831:

'When the colony attains that station to which she is naturally destined, the pretty little island of "Pinchgut" may become of definite importance for the security of the harbour. Its solitary singleness will, under any circumstances, for ever render it an ornament to the port should it not be required for any public purpose. At present the barren beauties of this spot are suffering severely from the picks of ballastmen, who, even on the Sabbath Day, demolish the cliffs of "Pinchgut". The Crown ought, and it is trusted, will preserve this bleak though beautiful little isle from such profanation, especially upon a day when labour should be suspended.'

On 30 November 1839 there occurred an event that was to spell the doom of 'the pretty little island'; for it was on this morning that the citizens of Sydney awoke to find themselves confronted by a United States Exploring Squadron, consisting of the sloop-of-war *Vincennes* (bearing the broad pendant of Commodore Charles Wilkes), the sloop-of-war *Peacock* (Captain Hudson), the brig-of-war *Porpoise* (Lieutenant C. Ringold) and the schooner *Flying Fish* (Lieutenant Pinckney), which had slipped into the harbour during the night unremarked and unreported, and had come quietly to anchor in front of the very town itself. If a friendly squadron could do this, it was argued, what could an enemy fleet not do? On 13 February 1840, accordingly, the *Sydney Gazette* embarked on a long denunciation of the existing state of Sydney's defences. 'The colony of New South Wales', it said, 'could not at this moment protect itself against an attack from a 20-gun Corvette. We have not a single fort capable of resisting a single broadside from a ship of war, nor have we a single gunner (employed as such) in the Colony.' The American squadron's arrival was pointed to as an instance of what could easily happen in the event of war: 'It is true they came here in the character of friends, but had their intentions been hostile, we neither possessed the means to prevent their entrance in the first instance, nor to have protected ourselves from the subsequent consequences.'

1 Report dated 12 August 1806, reprinted in *The Historical Records of New South Wales*, Vol. VI.

However, Major (later Lieut.-Colonel) George Barney, R.E., in charge of engineering projects in the colony since 1835, had not been idle, and had actually already suggested the levelling of Pinchgut Island in preparation for a battery of guns he proposed to place there, as part of an overall plan for the defence of the harbour, which, together with similar works at Newcastle, Wollongong, Port Macquarie and Port Phillip, was to cost the very moderate sum of £5000.

Growing desperate in the face of growing public opinion, and himself firmly believing that something would have to be done, and that quickly, the Governor, Sir George Gipps, ordered Barney to proceed with the levelling of Pinchgut, using convict labour. The work began in October 1840, with both Gipps and Barney well aware that by proceeding with the project before financial approval was received from the Imperial Government, they were committing a serious breach of discipline. Gipps was probably greatly influenced in his decision by the impending termination of the existing system of transporting convicts to New South Wales, the order actually being signed by the Queen in Council on 1 August 1840. The cost of carrying out the defence works without convict labour would, of course, have been considerably higher. As was to be expected, the new activities met with the unanimous approval of the colonists (unhappily one of the few occasions when Gipps could claim it) and the *Sydney Herald* of 12 February 1841, was able to refer to the 'warlike and business-like' preparations then in progress under the superintendence of 'our active and spirited officers' and to 'the warm reception' it was hoped to give 'some French frigate or letter of marque' that should 'think fit to pay us a sort of Paul Jones visit'.

The use of convicts was not unattended with difficulties. The *New South Wales Government Gazette* of 12 October 1840, for instance, declares that 'A Gang of Convicts being Employed at Pinchgut Island, His Excellency the Governor directs it to be notified that no person who is not acting under the orders of the Government will be allowed to land there under any pretext whatever.' Nevertheless, despite these and other precautions, six convicts did manage to escape from the working party on the island in January 1841. However, four were recaptured within a short time, and it is probable that the other two followed them not long afterwards.

The work of cutting down the island continued during the whole of 1841, until, it being almost reduced to water-level, preparations were begun to mount several 24-prs. The colony being wellnigh devoid of trained gunners, it was now decided to train certain of the prisoners 'to the use of the guns'. However, in 1842, Gipps was forbidden to proceed with the works by the Imperial Government, although, fortunately for him, the

very small sum of £300 already expended on Pinchgut was approved for payment. And so it remained for more than a decade, an eyesore and a constant source of annoyance to Sydney's growing population. Writing in his *Historical and Statistical Account of New South Wales*, published in 1875, one of the most prominent of these, Rev. Dr John Dunmore Lang, was caustic in his condemnation of the 'official Goth or Hun' who had persuaded the local government to quarry down what he termed 'a vast mass of grey, weather-beaten rock. . . this remarkable ornament of the harbour which no work of art could have equalled. . . this remarkable work of God which had stood like a sentinel keeping watch upon the harbour for thousands of years.' All that remained for him was to name those he regarded as the true culprits:

'The only persons to whom I can now refer it with confidence are the late Colonel Barney, then at the head of the Works Department in Sydney, and his superior officer, the late Sir George Gipps, who had both been officers of Engineers in the same corps in England and who, in the case in question, as the only functionaries at the time who had power to do such a thing, perpetrated a deed of downright vandalism, to which the only parallel I can find in modern history is that of the Communists of Paris, in pulling down the famous triumphal column in the Place Vendôme, in their noble city. I can never pass the island even yet without feeling indignant at the heartless deed which, unlike that of the Communists, can never be remedied.'

There is a picture in existence of Pinchgut as it stood in 1800 in George Barrington's *Voyage to New South Wales*, published in England in 1810. Here it looks neither very picturesque nor particularly 'vast'. Is this because the amateur artists of the day lacked the ability to portray it properly, or can it be that Dr Lang's admittedly fertile imagination lent it more beauty than it ever possessed in real life? On Dr Lang's behalf, it can, however, be said that his is not the only recorded opinion that the levelling of Pinchgut was an ethical mistake. The *Sydney Morning Herald* of 5 May 1854, contains a 'pathetic', if somewhat unusual letter which reads:

'A Voice from Pinchgut. . . . A few years back, I was an object of admiration to all who visited the waters of Port Jackson, but, alas, in an unhappy hour, I became the victim of a designing colonel of Engineers, who most ruthlessly despoiled me of my charms and has left me,"a mark for the finger of scorn to point at". Dear Editor, can nothing be done for me?—Your broken-hearted servant, Pinchguttina.'

There is another letter in similar, if more serious, vein in *The Empire* of 28 September 1854.

On 30 January 1844 Pinchgut and other lands at Moreton Bay, Parramatta, Windsor, Liverpool, Bathurst, Newcastle and Dawes' Point (Port Jackson) were made available by Gipps (and subsequently by his successor FitzRoy) to the Board of Ordnance for the purposes of defence at a total nominal rental of one shilling per annum. After the passing of the Constitutional Act on 16 July 1855, granting responsible government to the Colony of New South Wales, these lands remained the property of the Imperial Government, unlike other Crown Lands which were transferred to the new Colonial Government. For many years, this state of affairs continued, the New South Wales authorities keeping up the annual payment to the Imperial Government of the previous very reasonable rental.

In May 1844 Barney returned to England, being relieved by Lieut.-Colonel J. Gordon, R.E. This was not the signal for a cessation of interest in Sydney's defences. On the contrary, Gordon devoted much time to evolving new schemes in readiness for the time when funds would at last be made available. Now, however, Pinchgut Island assumed a somewhat less important role. Whereas previously Barney had envisaged a system of five fortified areas surrounding Sydney Cove itself, Gordon now proposed to remove the major defences to an area surrounding the Heads, five miles distant. Pinchgut was still to be used, but was to mount only two heavy guns. The details of this scheme were approved in principle by the Inspector-General of Fortifications, Sir John Burgoyne, in a memorandum dated 26 November 1845:

'The Commanding Engineer's project', he wrote, 'comprehends merely the prevention of enemies' vessels making use of, or entering Port Jackson. The positions for the Batteries at Inner South Head, Middle Head, George's Head, the Sow and Pigs, and Pinchgut Island seem to be well chosen for the purpose.'

On 9 March 1847, in a Minute to the then Governor, Sir Charles FitzRoy, Gordon again stated his dissatisfaction with the potentialities of Pinchgut as a major factor in the defence plan, but, in addition, apparently for the first time (although it is by no means unlikely that Barney had previously suggested it) he raised the possibility of erecting a casemated tower on Pinchgut to house two heavy guns, possibly 56-prs. In another Minute to FitzRoy dated 23 November 1848, he gave a further description of this proposed tower. It was to be 'a Martello Tower, the Terre-plein 40 feet over high water mark with accommodation for one non-commissioned officer and 13 men; mounting 2 heavy guns, one in casemate and one on Terre-plein'. It was also to include 'stores, magazine and water-tank' and he estimated the probable expense to be £2000 if convict labour

were used, and £6000 if free labour were used. The whole defence plan was estimated to cost £24,600 if erected by convict labour, and £78,050 if erected by free labour.

Obviously, the defence of Port Jackson was also a matter of concern for the colonists at this time; for not only was there a distinct quickening in interest by the authorities, but there is also more concrete evidence in the shape of a Memorial addressed to Governor FitzRoy on 4 November 1847, by the Mayor, Aldermen and Councillors of the City of Sydney. Here they expressed their belief that not even a permanent naval squadron based in Sydney could adequately defend the town. Only fixed fortifications could do this; for 'were some land defences timely erected, we should have the means of self defence, leaving our gallant Navy to seek the foes of Great Britain on the open ocean'. FitzRoy forwarded the Memorial to Earl Grey, the Colonial Secretary of the day, but a refusal to help had in fact already been sent by that Minister in response to an earlier appeal by the Legislative Council of New South Wales. Thus, writing on 4 March 1848, he said 'I can hold out no expectations whatever to the Legislative Council of New South Wales that Her Majesty's Government will be able to render any assistance towards the erection of the works which have been suggested at Sydney, unless they think proper to vote the requisite funds for their construction, and on that condition, Her Majesty's Government will be happy to direct the Board of Ordnance to appoint Officers to plan and execute the works.'

This question as to who was to bear the expense was to arise time and time again until responsible government became a *fait accompli* in 1856. Meantime, Pinchgut had acquired a new status as a favourite fishing resort. But, once again, the authorities had more ambitious ideas, and in the Legislative Council on 19 November 1851, the Colonial Secretary moved that a Select Committee of seven should be set up to inquire into, and report on, the state of Sydney's defences, and determine steps which should be taken to remedy defects. Notwithstanding Governor FitzRoy's backing, however, (prompted by another guarded despatch from Earl Grey dated 21 June 1850, promising that 'Her Majesty's Government would willingly take steps for stationing an additional Regiment in New South Wales, and also a detachment of Sappers and Miners, provided the Legislative Council would vote the amount required for their pay, including both their ordinary pay and the working pay to which they would be entitled') the motion was defeated and, at the instance of one of the members of the proposed committee, the following resolution passed: 'That this Council decline to entertain the proposal of the Government for the Construction of such works as may be necessary for the Defences of Port Jackson, until the Local

Legislature shall be invested with the entire control of the Colonial Revenue, Territorial as well as General.'

Thus matters remained for nearly two years, until, on 12 July 1853, with the international situation much worse, another attempt (this time successful) was made to set up a Select Committee on Defence. This committee included Barney, who had now finally returned to New South Wales, having retired from the Army. As was to be expected, the Gordon Plan, involving major defence works at the Heads and lesser works near the town, was adopted. It is ironic, however, that it fell to Barney, as the most experienced of the Committee, to explain its recommendations to the Executive Council; for it was his original proposals (now apparently superseded) which were adopted practically *in toto* less than two years later. On 7 October 1853, however, the Legislative Council resolved to proceed with Gordon's plan and instructions were accordingly issued for work to begin on 19 October. That the colonists' fears of attack in the event of war were to some extent justified, is evident from the number of ships now using Port Jackson. In 1837, 260 ships of 67,360 tons entered the Colony of New South Wales (nearly all, of course, entering Port Jackson) but in 1853, the figure had risen to 1048 ships of 336,852 tons. The percentage of these ships likely to be in the harbour, virtually unprotected, at one time, would have made a fine haul for any squadron or even a solitary privateer.

Undoubtedly, Barney must have been a very stubborn man; for, on 2 June 1854, in a report on the progress already made in the Defence Works, he once more pressed the claims of his Inner Harbour Defences, including, of course, Pinchgut which 'has been excavated to receive eight guns, but the construction of a Tower on this site, as proposed, is, in my opinion, urgently required'. Barney's professional prestige must have risen considerably in the Colony, and his advice assumed greater weight, as a result of a Despatch from His Grace, the Duke of Newcastle to Governor FitzRoy on 3 June 1854. Referring to the Imperial Government's inability, consequent on the outbreak of war with Russia, to send troops to assist in the defence of Port Jackson, he says that 'Lord Raglan considers Lieut.-Colonel Barney to be an Officer of ability, great experience, and high character, and I would recommend that the execution of this service should be entrusted to Lieutenant-Colonel Barney and that he should, if possible, organize a small Local Corps of sappers and miners on the spot.'

On 17 January 1855 Sir William Thomas Denison, formerly Governor of Tasmania, landed in Sydney to assume the position of Governor of New South Wales and Governor-General of the Australian Colonies. He had had a distinguished career as an engineer and administrator. Joining the Royal Engineers at the age of nineteen in 1823, he assisted in the construc-

tion of the Rideau Canal, Canada, from 1827 to 1831, winning the Telford Medal for a report on American timbers. In 1837 he was placed in charge of works at Woolwich Dockyard and was employed by the Admiralty until 1846, when, a first-class engineer being wanted for the Governorship of Tasmania, he was recommended by his superior officer, Sir John Burgoyne, and assumed his new duties in 1847. His later transfer to New South Wales was, of course, a promotion in recognition of his sterling services under difficult conditions in Tasmania. It is thus unfair to claim, as has been done, that Denison had had little experience with the type of constructional work with which he busied himself when he came to New South Wales. On the contrary, his whole life had been devoted to it. The association of Denison with Barney, whose own career had been much above average, including, as it did, the improvement of Portsmouth's defences and the Engineer Command at Woolwich, should have been both enduring and useful. It has certainly proved to be enduring, and, as for utility, one can hardly blame either Denison or his chief lieutenant in this field for the staggering advances then being made in naval armour and armament overseas, whose full import was bound to take time to permeate through to the furthest of the colonies.

One of Denison's first tasks was to review the whole defence project. He was not long in reaching his decision. The present 'Gordon Plan' should be abandoned and Barney's reinstalled. In a Minute to the Legislative Council dated 10 February 1855, he stated fully the reasons which led him to this opinion. The only possibilities of attack, he thought, were from (*a*) a fleet containing a body of troops 'whose number and equipment would be such as to warrant an attempt to land and carry on operations against the city', (*b*) 'a number of heavy frigates, without troops, whose object would be either to carry off or destroy the shipping within the harbour, and to lay the city under contribution'; and (*c*) 'a few frigates or privateers whose object would be the same as that last mentioned.' Of these, (*a*) was obviously most improbable; for the provision of such a fleet, the risk of throwing it so great a distance from what would necessarily be the main scene of action, and the certainty of the most determined resistance to foreign invaders by the colonists themselves, were factors which no nation of lesser sea-power than Great Britain herself could possibly risk. For (*b*) and (*c*) there was more to be said. In the case of (*b*), 'a certain number of these vessels would engage the batteries at the entrance of the harbour, supposing such to be made, while others would run past the batteries and push at once for the town'. In the case of (*c*), 'an attempt would probably be made to run past the outer batteries in the night'. And once clear of the major defences, what was there seriously to hinder them? Only a series of comparatively

weakly fortified emplacements. Damage might be done to the raiders at the Heads, admittedly, but there was plenty of room within the harbour, out of range of the weaker defences, to carry out such repairs as would be necessary before proceeding to the task of reducing the town proper. Surely, then, his argument ran, it would be better to concentrate the fortifications nearer the town so that their cross-fire would soon render any vessel engaging them a complete wreck. Finally, and this a highly cogent argument to the colonists, whereas the Gordon Plan would cost 'at least double the amount of the original estimate, that is, between £150,000 and £170,000', the newly proposed works would hardly exceed the original estimate. These views were, not surprisingly, wholeheartedly supported by Barney in a special report.

Pinchgut was now to mount not two, but at least eleven heavy guns. Approval for the change of plans was given by the Legislative Council, and work was accordingly stopped at the entrance to the harbour and pursued more vigorously around the town. The colonists themselves could not altogether survey the changes without some uneasiness. The *Sydney Morning Herald* of 9 March 1855, for instance, says:

'After a year's labour on the fortifications at the Heads, and after an expenditure thereon of about £6,000, His Excellency has thought proper to put an absolute stop to the works, and to order the forts to be dismantled. This order was issued late last week, and is, we are informed, being implicity and vigorously obeyed. Sir William's intention is to transplant the fortifications to the immediate neighbourhood of the city—Pinchgut Island, Dawes' Point and elsewhere. On the military merits of the question here once more raised, we do not presume to express an opinion. But this much we may say with propriety—that in thus suddenly and arbitrarily setting aside measures adopted after many years of mature deliberation, by his predecessor, recommended by Colonel Gordon and Captain Denham, approved by Sir John Burgoyne, and sanctioned by the Legislative Council, Sir William Denison has incurred a grave responsibility and must be prepared to render a strict account.'

However, Denison remained unmoved, and, in company with Barney, carried out an inspection of the various points to be fortified. Referring to Pinchgut in his consequent report to the Legislative Council on 13 March 1855, he wrote:

'The work here has already been commenced and is in a state of some forwardness; the Parapet is nearly complete; a Tower is required at the north end which might constitute a sort of keep, and thus render it impossible for an enemy to retain possession of the battery or turn its guns against the town; it would be desirable to excavate the ground in front of the

sea-face to a depth of five or six feet below low water mark, and so to have a sort of wet ditch in front, which would prevent any attempt to force in by escalade; the rubbish should be shot out in front of this ditch, so as to prevent boats coming up to the wall. A Barrack would be required in the rear for 60 men, besides the number which the Tower would accommodate. The form of the works in the rear will of course be regulated by the shape of the ground, but they should be made to contribute towards the defence of the work and to prevent the landing of troops to take the battery in rear.'

This is substantially the plan of the fort as it was built and as it stands to-day. The construction of the 'wet ditch' referred to has been the subject of much subsequent derision, and, on the face of it, it does seem difficult to reconcile a sea-girt fort with a 'moat' which was, moreover, to cost a full thousand pounds. Nevertheless, it would certainly have prevented embarrassing attacks from boats drawn up under the walls (and guns).

It is of interest to observe at this stage that whereas the efforts of the colonists in building the fort were largely directed against the possibility of an attack by Russian warships (Britain and France of course being at that time at war with Russia), Denison himself laboured under no such delusion. In a letter to a friend, Sir Roderick Murchison, dated 21 May 1855, he makes his position clear:[1]

'You laugh, and with reason, at the panic which led people in these Colonies to insist upon fortifying themselves against the Russians. I never partook of this panic; but I have gone into the question of the defence of Sydney for the purposes of keeping off much more unpleasant neighbours than the Russians; namely, our friends the French and our relations the Americans. The access to this harbour is so easy that unless we have some heavy batteries ready to open fire upon vessels lying off the town, a few frigates might run in under cover of the night, and the first notice I should have of their arrival would be a 32 lb. shot, crashing through the walls of my house. Of Russia, I have not the slightest fear.'

The keystone on the last arch in the tower basement was laid by Barney on 24 July 1856, and to this day his initials, together with those of Denison, W. Coles (Superintending Engineer) and W. Randle (Building Contractor) may be seen on it. The *Sydney Morning Herald* of the following day reported, in connexion with the ceremony, that 'the most perfect good feeling appeared to exist on the works between the employer and the employed, and the structure appeared to be of the most substantial character'. The workmanship was, indeed, of a standard that reflects the greatest credit on all who were concerned with it. No doubt this was in large measure a result of the harmonious relationship referred to by the *Herald*.

1 Reprinted in Denison's *Varieties of Vice Regal Life*, p. 309.

In a report dated 27 June 1856, recommending certain additions to the works, presented to the Executive Council and later the newly elected Legislative Assembly, Barney made the following comment:

'Pinchgut may be considered as about two-thirds completed, the workmanship is excellent and I think, the work has now assumed a character worthy of a better name than Pinchgut.'

It is to him, therefore, that we owe at least the conception of a new name for the completed fort. It was only natural, perhaps, that it should assume the name of the man who, above all others, had made its construction possible. Accordingly, on 15 October 1857, the *New South Wales Government Gazette* advised that 'the Fort constructed on the Island situated about mid-channel between Garden Island and Keribilli (*sic*) Point in the Harbour of Port Jackson, being now in a fit state for occupation, Their Excellencies, the Administrators of the Government have been pleased to direct that the said Fort shall be designated "Fort Denison" in complement to His Excellency, the Governor General.'

During all this time and, indeed, for some time afterwards, Denison himself was engaged in a lengthy exchange of views with the British Government on the usual problem of who was to bear the financial responsibility of the defence works. It will be recalled that this was the rock on which negotiations had foundered in 1851. Now, with Britain at war, and New South Wales on the verge of being granted responsible government, the colonists were more ready to bear their part of the burdens of self-defence. The adoption by the Executive Council on 23 July 1856, of the principle that 'all permanent and necessary works and buildings such as batteries, barracks, magazines and stores should be constructed and maintained at the cost of the colony' meant that Fort Denison was actually one of the first major means of defence wholly constructed at the cost of the inhabitants of Australia. Denison's correspondence over the whole question nevertheless continued for several years, often with a quite surprising heat, but its ultimate results and terms bear on Australian defence as a whole rather than on a particular form of harbour defence in particular and I must accordingly reluctantly dismiss them as beyond the scope of the present article.

Fort Denison, then, was completed in 1857, the keystone of the last arch of the Martello tower proper being laid on 21 January 1857 by the engineer, W. Coles, in the absence of Barney who had for some reason failed to attend. Denison himself was unfortunately engaged on a tour of the settlement at Norfolk Island. The *Empire* of the following day reports that about seventy gentlemen were present at the ceremony, which must have been a festive one with a German band in attendance, the island liberally decorated with

flags, and a good luncheon (including some twelve different toasts) at the end.

The fort as completed may be summarized as follows: At the north end was the Martello tower commanding the harbour approaches and mounting three 32-pr guns within the casement and another gun, probably 10-in., on the terre-plein. The choice of this type of structure is particularly interesting, as it is the only one of its kind in the southern hemisphere, and, being constructed fully fifty years after its counterparts in England (reviewed in *The Mariner's Mirror* in July and October 1948), it must be considered something of an anachronism. Nevertheless, it is generally considered to be one of the finest examples of its type in existence. The three 32-pr guns in the tower were placed in position during construction and it is now impossible to remove them without demolishing large sections of the tower itself. Behind the tower, extending, with the island, in a south-westerly direction, were the barracks, designed to accommodate 58 officers and men. The principal armament of the fort finally consisted of two 10-in. and twelve 32-pr guns. This was an increase of three 32-prs over the original plan, it being found possible to add one to the proposed tower armament of two, and two others *en barbette* at the south-east corner of the island. A parapet enclosed the entire battery area of about half an acre.

The fort was actually constructed under contract by Mr W. Randle, who, it is interesting to observe, had the double distinction of constructing, in 1853, the first railway line in Australia (from Melbourne to Sandridge, now Port Melbourne) and, in 1855, the first railway line in New South Wales (from Sydney to Parramatta Junction, now Granville). It is recorded that some 8000 tons of stone were used on the fort. The material was quarried at Thrupp's Point, Neutral Bay, on the North Shore of the harbour not far from the fort itself. More precise details of the construction are contained in estimates prepared by Barney in 1855. Since little alteration was ultimately made to them, other than the addition of three guns already noted, and since the description can hardly be bettered, I reproduce them in full:

'Constructing casemated barracks to afford accommodation for 2 officers and 44 rank and file, together with the necessary outbuildings. The front and internal walls to be built of draft and axed masonry, and the apartments to be vaulted with 14-inch brick arches, laid in cement, abutting against the natural rock on the north-western side of the battery, which rock will be faced to form the back wall of the building. The arches to be covered with a coating $\frac{1}{2}$-inch thick of asphalt, to prevent damp, the haunches to be filled in solid with rubble and grouted; and the whole to be finished with a 12-inch course of cut-stone, laid so as to form the superior slope of the rear parapet

the battery. The officers' and soldiers' rooms to be fitted up same as those the barracks before described (item 4) (i.e. the Barracks on Lady Macquarie's Point) and the cookinghouse to be furnished with three boilers with steam apparatus complete; the front along the waterside to be enclosed by a dwarf wall 4 feet 6 inches high, sloped outwards, forming a kind of breastwork, and flanked at both ends by loopholes.

'Building a casemated tower 51 feet diameter at base and 47 feet high, adjoining the northern end of the present battery, to mount 2 guns on traversing platforms, and afford accommodation for 14 men; the lower casemate to be fitted up as magazines for powder, stores and provisions, and a tank capable of containing 10,000 gallons of water, to be supplied with rain water from the battery. The walls to be of axed masonry *11 feet 6 inches thick at the base, and 9 feet at the parapet of upper platform*; the entrance to the tower to be from the platform of the lower battery, and the casemates and the platform to be reached by means of stone stairs formed in the body of the wall; loopholes to be constructed in the stair-case to command the lower battery; the casemates to be vaulted with stone arches, the lower 2 feet 3 inches, and the upper 2 feet 6 inches thick; the upper arch to be covered with a coating ½-inch thick of asphalt, and the haunches to be built in solid with rubble and grouted; the floor and platform to be laid with flagging; the platform to be surrounded by a stone banquette 1 ft 3 ins: wide and 1 ft 4 ins: high; pivots and races to be fixed for two heavy guns.

'Completing the present battery, making good all deficiencies in the parapet etc. and scarping the outer face, raising the front parapet 3 feet with masonry, and forming embrasures; laying down pivots and rails for 10 guns; the races to be sunk and leaded into stone curbs; the platform and front banquette to be of earth sodded with turf; banquette in rear to be of cut stone 1 ft 4 ins: high; the battery to be entered by means of a flight of stone steps, covered over by an arch finished to correspond with the roof of the casemated barracks: the entrance to be protected by means of a strong iron gate; the eastern front of battery to be protected from escalade by a ditch 12 feet wide and 5 feet deep below low water of ordinary tides; providing 9 new wooden traversing platforms and mounting 12 guns.'

The estimated cost of this work was £16,550, made up as follows:

'Casemated Barracks for the accommodation of 2 Officers and 44 rank and file	...	£3,900. 0. 0
Casemated Tower to mount 2 guns and afford accommodation for 14 rank and file	...	£9,000. 0. 0
Finishing present Battery and fixing races and pivots for 10 guns	...	£1,500. 0. 0
Nine traversing platforms	...	£ 450. 0. 0

Excavating ditch on Eastern side, 12 feet wide and 4 feet deep, below the water level ... £1,000. 0. 0
Raising parapet and constructing embrasures ... £ 700. 0. 0

The later modifications and additions referred to, cost an additional £4217. 18*s*. 1*d*.

In the first instance, in common with Port Jackson's other defences, Fort Denison was manned by members of No. 3 Company, 7th Battalion of the Royal Artillery, who, under the command of Captain Lovell, had arrived in Sydney by the ship *Nimrod* (Captain Gatenby) on 12 October 1856. Besides Lovell, there were three other officers, Captain Strover, Lieutenant Carey and Lieutenant Pitt, and 115 N.C.O.'s and men. This company was relieved in January 1865, and returned to England. In August 1870, all Imperial troops were withdrawn from New South Wales and the whole of the responsibility for military defence fell upon the colonists. Fort Denison itself, however, was manned by the Naval Brigade a year earlier in 1869, with the proviso that the warning light which had been established on the island on 21 June 1858, 'to the satisfaction of all connected with shipping' should be kept burning at night and a fog alarm sounded when necessary. Both these duties have in fact been maintained ever since.

In 1859, still evincing a strong interest in Sydney's defences, Denison was able to report:

'Fort Denison is completed and armed; it mounts 15 guns and has barrack accommodation for 58 men; a detachment of artillery is quartered in this fort.'

Since the armament of which we now have details had totalled only 14 guns, it must be presumed that in the intervening period, another had been added without, however, any readily accessible record being kept of it. It is, I think, unlikely that Denison should have made an error, even of a single gun in a matter which concerned him so closely.

Denison left Sydney to assume the post of Governor of Madras (another promotion) in 1861, while Barney, who had taken little interest in public affairs since his retirement from the post of Surveyor General in 1859, died in 1862. This left the way clear for any sweeping changes in the defence scheme that were felt necessary, and further impetus was gained from a growing realization of the significance of changes in naval construction and armament then proceeding at a rapid rate overseas. This is clearly recognized in a paper read to the Philosophic Society of New South Wales by G. A. Morrell, an engineer, on 6 September 1865:

'As heavy rifled artillery has a proportionately greater effect than the old smooth bore guns, it would be unsafe to trust to masonry for our

atteries, and at least that portion of our works likely to be exposed to the re of heavy rifled ordnance ought to be covered with armour plates. . . . n 1855, during the Russian war, three French floating batteries, *Devastaon*, *Tonnante* and *Lave* covered with $4\frac{1}{2}$ inch armour plates received the res of the Russian smooth bore guns at Fort Kinburn without injury at the anges of 600 and 700 yards.'

In a word, the Barney-Denison scheme was already quite outmoded, and he cherished Fort Denison would, in any future engagement, be worth no nore than so much rubble. And so it gradually fell into oblivion, although ot finally abandoned by the Naval Brigade until 1900. In 1901 the ontrol of Fort Denison was transferred to the newly created Sydney Harbour Trust, and, finally, in 1936, to the reconstituted Port Authority, he Maritime Services Board of New South Wales.

It is reported (although I have been unable to trace any relevant date or ontemporary record) that at about the turn of the present century, two oung officers from a visiting ship, tiring of Sydney's night life, rowed out o the fort in the dead of night, climbed the tower undetected, and filled the arrel of the gun which then stood there, with gunpowder. A few minutes fter they made a hurried escape, the residents of the harbour-front were udely awakened by a shattering explosion. Many windows were broken and a state of near panic existed among some of the more nervous citizens, who apparently feared a surprise invasion. It was with considerable relief that they saw dawn break without any signs of a landing by 'enemy' forces.

It was rumoured in 1905 that the fort was to become a saluting base for distinguished visitors, but it was only a rumour and nothing definite ever eventuated. At about this time, too, it survived a proposal that it should be demolished and a huge statue representing Australia facing the dawn erected in its place, neither more nor less than a poor imitation of New York's famous Statue of Liberty. Fortunately, better sense prevailed and the proposal was defeated.

From 9 February 1906 until 10 February 1942 a signal gun was regularly fired at 1 p.m. daily from the island, primarily for the benefit of shipping. For some time, this was regularly broadcast and it was calculated to have one of the biggest audiences of any programme in New South Wales.

In 1918 alterations were made to the southern end of the island, mainly with a view to its beautification. Dilapidated wooden boat-sheds and slips were demolished, but fortunately no attempt was made at 'modernization'.

A caretaker was installed in the fort by the Sydney Harbour Trust in 1901, and, with the exception of a short period during the recent war, one has been maintained there ever since. His duties comprise the general

maintenance of the fort, light, fog signal, and the automatic tide gauge now situated in a room near the base of the tower. Fort Denison has become the standard reference point for the recording and prediction of tides in Port Jackson. The present caretaker takes an obvious pride in his charge, and the fort's present spruce appearance is a credit to his industry.

The entry of Japan into the war in December 1941 led to Fort Denison being closed to public inspection, and it once again assumed a martial aspect when anti-aircraft armament was mounted, and the barracks, for so long the residence of the caretaker and his family, resumed their proper function of housing a military garrison, numbering about 30 officers and men.

It was during this period that Fort Denison came nearest to actual participation in a naval engagement designed to protect Sydney from enemy radiers; for, on the night of 31 May 1942, Port Jackson was attacked by Japanese midget submarines, whose objective was the destruction of allied shipping in the harbour. In the darkness and prevailing confusion, U.S.S. *Chicago*, lying off Garden Island, apparently mistook the outline of Fort Denison for that of one of her attackers, and opened fire. By rare good fortune, however, damage to the fort was limited to the breaking of a number of windows. Thus it is that Fort Denison's destruction has, grotesquely enough, been most nearly accomplished by those whose supposed designs Denison originally most feared and set himself to frustrate, 'our relations the Americans'.

On 1 April 1943 the island was vacated by the Army and handed back to the Maritime Services Board, but extensive renovations were needed before it could be once more opened to the public in May 1945.

In February of 1950 I visited the island in pursuance of research connected with the present article. The fort stands to-day in much the same condition as it was more than ninety years ago. As is to be expected, there are signs here and there of the passing of the years in the stonework (although these are by no means either extensive or excessive), and in the number of missing window-shutters, iron doors and guns. The huge blocks of stone comprising the fort proper are locked together in a remarkably deft fashion by small diabolo-shaped cross-pieces of granite (known to builders as joggles). The number of these is an indication of the thorough methods of construction employed.

The Martello tower is, without a shadow of doubt, the masterpiece of the whole work. From the four magazines that comprise the basement to the terre-plein above, the workmanship is, as Barney said, excellent. The basement, mostly hewn out of the original rock, still bears on its bituminous floors the round marks of the powder kegs that were stored here.

Originally, oil lamps flickering of necessity behind wire screen protectors illuminated this part of the fort, but these have long since given way to the apparent incongruity of a modern electric light.

The tower-room containing the three 32-prs is connected to the magazines by two steep and narrow flights of steps. The second of these, from ground-level to the room itself, is punctuated at frequent intervals by apertures designed to permit covering fire to be brought to bear on the battery and barracks below. The 32-prs are in an excellent state of preservation, and look as if they could be brought into action at a few minutes' notice. Around the room, too, are preserved some of the original powder buckets, ram-rods, sponges and other utensils required to fire the guns, together with such other historical oddities as a set of rum measures used by the early garrisons, a brass gong used to warn approaching shipping in time of fog before the installation of the present electric fog signal, copper utensils formerly used to fill the various lamps in the fort, and the oil-lamp from Sydney's first lightship. Like the whispering gallery in the dome of St Paul's Cathedral, this part of the fort possesses peculiar acoustic properties that enable words whispered at one side of the chamber to be clearly audible near the wall at the other side.

The gun that was formerly mounted on the terre-plein above, has, of course, long been removed, but the possibilities inherent in its commanding position at the time of its construction are still very obvious.

The barracks of the fort are now mainly used to accommodate the caretaker and his family, the principal innovation being, perhaps, the installation of a diesel engine that generates the island's electric power. This has been found a more satisfactory arrangement than relying on the city's overburdened system.

The water supply was formerly provided by a stone tank 28 ft. long, 14 ft. wide and 14 ft. deep, with a capacity of some 33,500 gallons, situated along the south-easterly side of the barracks. It is replenished by rain, and not, as is so often suggested, by a natural spring. To-day, however, a pipe-line has been connected to the city's mains at Garden Island, and it is this water which is used for domestic purposes.

The battery surrounding the island behind a solid, stonework parapet has probably suffered more than any other part of the fort with the passing of the years. Many of the guns are missing, although definite efforts have been made to preserve those still remaining, in as good a condition as possible. The guns mostly bear the mark of either W. North or Woolwich, and their dates range from 1841 to 1856.

The future of Fort Denison as one of Sydney's comparatively few historic relics now seems assured, particularly since one of the best authorities on

the subject, Mr A. B. Shaw, M.B.E., is the present Secretary of the Maritime Services Board. He has prepared an informative little book on the construction and history of the fort which provides interesting material both for the casual sightseer and for the more ardent investigator.

As to Fort Denison's ultimate effectiveness, it must again be admitted without reservation that viewed in the light of developments that occurred within five or ten years of its completion, it was, as someone has described it, 'a colossal blunder'. But that it was so at the time of its construction, taking into account the meagre information available to its devisers, is quite another matter; for it does seem certain that had Sydney ever been raided by a ship or even a squadron of the old 'wooden wall' variety, the Barney–Denison scheme of defence would have exacted a terrible, if not a mortal, contribution.

HUGUES DE BERZE AND THE MARINER'S COMPASS

By Commander W. E. May, R.N.

HUGUES DE BERZE, sometimes called Hugo de Bercy, was seigneur of Berze-le-Chatel, in the bailiwick of Macon. He took part in the Fourth Crusade and was present at the taking of Constantinople by the Latins in 1204. On his return to France he composed a poem, which he called his *Bible*, consisting of 838 lines, each of eight syllables. This *Bible* is written in satirical vein and censures the manners and morals of the time.

About the middle of the sixteenth century Estienne Pasquier (1529–1615), a distinguished French lawyer, wrote on the literature of France. In compiling this work he consulted a manuscript, since lost, where the *Bible* of de Berze followed that of Guyot de Provins. It is the lines of Guyot, in which he describes a compass (after wishing that the Pope possessed similar constancy) that are so often quoted by historians of that valuable instrument. Hugues de Berze established the authorship of his own work in the lines towards the end:

Cil qui plus voit plus doit sçauoir	He who the more he sees the more should know
Hugues de Bersi qui tanta.	That it is Hugues de Bersi who speaks.

Guyot, however, gives no clue to his identity, but in Pasquier's manuscript his work was labelled *Bible Guiot*, and, since both poems have the same theme, that author jumped to the conclusion that they were by the same man, de Berze, and that the title of the former work was mis-written for the *Bible Hugiot*. He ignored the fact that the work of de Berze was less acrimonious in expression than the other and, as M. Daunou puts it, the style has 'plus de douceur et quelquefois plus d'elegance'.

Pasquier lent his manuscript to Claude Fauchet (1530–1601), a French historian who wrote on the same subject. Fauchet quite clearly did not confuse the two poets, attributing to each his own *Bible* and stating that two songs by de Berze were also known to him. These were apparently love songs, addressed to a lady in a far country of whom the poet had never had his desire.

The fact that Guyot and de Berze were two different individuals is now generally recognized and has been admitted by such writers as Barbazan (1759), the Comte de Caylus (1774), Daunou (1824) and Crichton Mitchell

(1932) although other authors, notably Schück (1911 and 1914) and Nippoldt (1921), still accept Pasquier's view in spite of the evidence to the contrary.

The connexion of Hugues de Berze with the history of the mariner's compass would thus appear to have been completely severed in the minds of all reputable historians of the instrument. Yet there is another point which appears to have been completely ignored by most of them or airily dismissed as part and parcel of the debunking of Pasquier.

The matter to which I refer appears to rest on the work of Father G. Fournier, first published in 1643. After quoting from Fauchet on the subject of Guyot's *Bible*, he says:

Nos Ancestres l'enfermoient dans vne phiole de verre demy remplie d'eau & la faisoient flotter par le moyen de deux petits festus sur l'eau comme vne Calamite ou Grenoüille. Hugo Bertius qui viuoit du temps de S. Louys, en mesme-temps ou peu après Guiot de Provines, dit que tel estoit l'artifice duquel les Matelots en ce temps-là se seruoient pour connoistre de nuit ou estoit le Nord.

Our ancestors enclosed it [the magnetic needle] in a glass phial half filled with water, and made it float by means of two small straws on water like a *calamite* or frog. Hugo Bertius who lived in the time of St Louis, at the same time or a little after Guiot de Provines, says that such was the artifice of which sailors in that time made use in order to know at night where was the North.

Riccioli, in 1661, obviously follows Fournier when he says:

Hugo Bertius, qui vixit tempore S. Ludovici Regis, refert Naucleros vti solitos vase vitreo aqua semipleno cui inclusum versorium ope festucarum duarum supernatabat.

Hugo Bertius who lived in the time of St Louis the King, says that captains were accustomed to use a glass vessel half filled with water in which an inclosed pointer floated with the support of two rods.

Abondio Collina, writing in 1748, says:

Assicurano in realtà le croniche della Francia, che nella prima spedizione di S. Luigi si adoperava la *Marinette*, che è quanto dir certo bussolo pleno d'acqua, sopra la quale sorretto da due pezzetti di paglia, o di sughero, tenevasi l'ago calamitato. Discorre di questa specie di Bussola Ugone Berzio, vivente al tempo S. Luigi, dicendo, che usavanla i marinari de'giorni suio per conoscere il Nort; e descrive assai diligentemente la facoltà direttiva della calamita nel madrigale, i cui versi notissimi sogliono attribuirsi a *Guyot de Provins* in certo satirico suo poema, e sono distesamente portati dal P.Rmo.

In reality the chronicles of France prove that on the first expedition of St Louis he adopted the *marinette*, that is to say a box full of water upon which the magnetized needle was upheld supported by two pieces of straw or cork. Ugone Berzio, living at the time of St Louis, talks of this type of compass, saying that mariners used it in his days to know the North; and carefully enough describes the directive faculty of the lodestone in the madrigal, the very well known verses of which are customarily attributed to Guyot de Provins in his satirical poem widely quoted by the reverend father.

and also:

...che a'tempi di San Luigi, cioè nel 1248. suor d'ogni dubbio s'adoperava in Europa, e che chiamossi poi *Marinette*.

...at the time of St Louis, that is in 1248, it [the compass] was without any doubt used in Europe, and that it was then called *marinette*.

In *Larousse du XX siècle*, 1928, after a reference to Guyot, appears the following, obviously derived from Fournier, in spite of the change of name:

Hugo Bertin, qui vivait vers la même temps, nous apprend qu'il s'agissait là simplement d'une aiguille aimantée renfermée dans une fiole de verre à moitée remplie d'eau: elle flottait sur cette eau par le moyen de deux petit fetus de paille sur lesquels elle était posée; les marins appelaient cet appareil *calamite*.

Hugo Bertin, who lived about the same time [as Guyot], informs us that it was simply a question of a magnetized needle enclosed in a glass phial half filled with water: it floated on this water by means of two little wisps of straw on which it was placed; sailors called this apparatus *calamite*.

Park Benjamin, writing in 1895, says:

Hugo de Bercy, in 1248, speaks of the compass as in common use, and notes a change in its construction, the needle now being supported by two floats and arranged in a glass cup.

He gives the author of this piece of information as Riccioli, but, as we have seen, Riccioli follows Fournier and calls the author of it Bertius and not de Bercy. S. P. Thompson has quoted Benjamin in his 'Compass' article in the *Encyclopaedia Britannica*.

The whole matter is very confusing. Pasquier merely says that de Berze lived in the time of St Louis, and Fournier that Bertius lived in the time of St Louis at the same time or a little after Guyot de Provins. It is now generally accepted that Guyot's *Bible* was written in 1206, while St Louis lived from 1214 to 1270, came to the throne in 1226, and embarked on his first crusade in 1248.

Collina and Benjamin seem to have jumped to the same conclusion that the 'time of St Louis' meant the date of his first crusade but, as we have seen, Benjamin had no apparent reason for this as he gives Riccioli for his authority and Riccioli never gave any such date. Collina may be following Trombelli, the 'P.Rmo' of my first quotation from his work, but I have been unable to locate a copy of that Father's *Dissertazione* and so have been unable to check this point.

We are left to wonder whether de Berze and Bertius were really the same man. If we take the 'time of St Louis' as meaning the earlier part of his reign it would seem that it might be possible, but if we accept 1248 as his date of writing he would seem to have been rather old then to be taking an interest in the sea, even if he had been a very young man at Constantinople in 1204. At the same time no other writer of the period would seem to fill the vacancy.

The whole matter will have to remain in doubt until some scholar traces the source of Fournier's quotation. One point is certain, Fournier, unlike Pasquier and Collina, was not confusing Guyot and Bertius (de Berze).

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THE ARREST OF THE *PRINCE FREDERICK* PACKET

By Sir Godfrey Fisher

THE case of this ship, which was arrested by Algiers cruisers early in 1749 on a voyage from Lisbon to Falmouth for failure to produce the stipulated Admiralty pass, is frequently cited as a particularly glaring instance of the bad faith and rapacity of the Algerines, an allegation which is by no means supported by the evidence in this case or by the remarkable but often unappreciated immunity enjoyed by vessels of the United Kingdom during the eighteenth century, a period marked, especially in the Mediterranean, by the 'licentiousness' of our own privateers and, to a lesser extent, by the irregularities of our warships. It furnishes an example both of the sort of 'Jeddart Justice' which an ill-informed but imperious government was only too apt to employ in connexion with those remote states, whose good-will, none the less, it was periodically so anxious to retain, and also of our curiously inconsistent attitude in insisting on the strict observance of treaty provisions regarding the use of Admiralty passes, a measure very favourable to our carrying trade, and in inveighing against the Algerines when they thought that they were complying not only with the treaty but with our officially expressed wishes. The abuse of these passes and the laxity of our official practice, which facilitated their use by foreigners to our detriment, had frequently been, and was at that very moment, the subject of protests and suggestions from the government of Algiers.

It is typical that nobody seems to have taken the trouble to ascertain what status a packet-boat might enjoy under international law or our treaties with Algiers, which was at that time at war with Portugal and blockading its coast. No evidence was produced in this case of the ownership of the vessel, of the terms of her contract with the Post Office (which was then not a government department) or of the nature of her operations, though we do know that she was engaged in private business and that soon afterwards our packets generally had acquired a most unenviable reputation, and no one, except the Dey, appears to have shown any interest in the ostensible sufferers, the owners of the confiscated cargo.

Our violent method of approach to what was at least a very debatable question, a form of procedure frequently followed from the time of Mansel to that of Nelson, had the unfortunate effect of lowering the authority of

the Deys who, usually well-informed about treaty obligations and favourable to an amicable solution of international problems, could, as we are told at this very time, 'only govern an unruly Militia by a very prudent Mixture of Severity and Clemency'. As it happened, this particular Dey erred rather on the side of severity and paid the penalty a few years later.

Only a brief résumé of the principal facts, some of which are curiously ignored in the contemporary archives, can be given here. We know from other sources that in the previous year Commodore Walker, the celebrated privateersman, and some forty members of his crew were passengers on board this packet from Lisbon when they met an Algiers cruiser and that the captain feared that his valuable cargo, probably illicit exports of bullion and precious stones, would be confiscated as Portuguese property. Walker, who had had friendly relations with these cruisers says that he staged an elaborate fraud to persuade the Algerines that it was 'a King's ship of war' and so succeeded in 'preserving the packet' and preventing an affair which 'might have been a matter of litigation and brought very sad consequences to our disfavour'. On return to Algiers the crew were informed by an English renegade that the captain's 'Post Office commission' was false and our merchants also 'made insinuations' about the vessel's cargo. At home no steps appear to have been taken to clarify the position or to ensure greater protection for the future.

Early the next year the packet was again arrested off the Portuguese coast and, being unable to produce the Admiralty pass, was conducted to Algiers. The Dey, who had just shown his good-will by releasing three of our vessels held for gun-running and who not long afterwards severely punished a captain for the questionable arrest of some English ships, apparently wished to release the cargo, again a valuable one of bullion and stones but the soldiers, who in emergency constituted the final authority, insisted on its condemnation, unless it could be shown to be specifically exempted by the terms of the treaty.

This was not possible and the cargo was distributed according to local law, the principal English merchant being the fortunate purchaser of the stones. It is interesting that Keppel is said to have commended his services and that he was later appointed consul by George III. The ship was released with little delay and a report was sent on 31 March 1749 to the Duke of Bedford, then Secretary of State, by the consul, a not altogether fortunate choice, whose protests were probably not very energetic or convincing, while the Dey was well aware what his fate would be if he tried to deprive the soldiers and others of what appeared to be their just rights.

Commodore Keppel, who at the age of twenty-three had just been assigned not only the command of the Mediterranean fleet but a diplomatic

mission for the renewal of treaties with the Barbary States, was immediately instructed to obtain the restitution of the property in concert with the consul who apparently received no advices or instructions other than those carried in Keppel's ship. It is noteworthy that before he had arrived at Algiers the young Commodore had, thanks perhaps to the Lisbon merchants, formed his opinion of its people who would 'soon be put to the trial'.

After a most inauspicious start due to an unfortunate combination of circumstances which convinced the inhabitants that the arrival of his seven ships was a declaration of war and 'almost caused a revolt' he found himself at a complete deadlock, as the Dey insisted on a strict interpretation of the treaty, which specifically provided for the confiscation of cargo in the absence of passes, pointing out at the same time the very real privileges enjoyed by the British in the Regency, partly at the expense of the French, and also that, as the cargo had actually been sold, restitution was impossible, which indeed seems to have been in accordance with our own practice.

Keppel's contention that the packet was exempt on the ground that she was one of His Majesty's ships and, somewhat ungrammatically, that 'the captain... had the same commission as the captains of his Majesty's ships of war have and are always looked upon as the same, having the like privileges in the port of Lisbon, which is no search and no people of the customs allowed to enter', was, even if his facts were accurate, of no avail against the Dey's position that he had had no advice on the subject, that such ships were not mentioned in the treaty, which his predecessors had been requested to enforce strictly, and that 'therefore when the King sends small vessels to sea we are to expect they have scallop't passes'.

The argument subsequently advanced that 'none of our ships are obliged by our treaties with Algiers to be furnished with Mediterranean Passes except Merchant ships or vessels employed in Trading Voyages' was not only unsupported by the more recent texts but was in any case hardly likely to be effective when the subject of the dispute was the confiscation of *cargo* and it does not seem to have been seriously pressed. In later times an English chaplain referred to the incident as 'an insult to the King's colours' but that was evidently not the opinion of our consul at the time who spoke of it officially as a 'nice affair', or of his successor, though a great stickler for treaty rights and national dignity. The consul for Tripoli who at some time accompanied Keppel clearly thought that the Algerine interpretation was right but that the treaty called for drastic revision.[1]

1 It is significant that the original French treaty specifically required 'ships, galleys and other vessels, *both naval and trading*', to be identified by the passes of the Admiral of France, and that as late as 1826 the French officially recognized the right of Algerine cruisers to inspect the passes of ships carrying mails between France and Corsica.

Keppel found himself in a quandary as he had been given 'a latitude to yield a little to avoid the consequences of an expensive and piratical war', whatever that denoted. By September he was at Port Mahon waiting for further instructions 'concerning those pirates, a better name they hardly deserve' and two months later he was still there waiting for 'their Lordships' directions concerning the Algerine gentlemen' but now hoping that the Admiralty 'will be more peaceably inclined, considering how submissive they have been in sending their ambassadors to his Majesty with presents and to *clear up the disputes in which they have the treaty so much on their side*'. It is a pity that he was not more specific, but as the ambassador is stated to have gone solely with reference to the old question of the issue of new passes it looks as if the process of reconsideration had already begun. At all events the Secretary of State took the trouble, somewhat belatedly, in January 1750 to make enquiry of the Post Office as to treaty rights and precedents in regard to Algiers, with results that hardly seem to have given encouragement.

It was not till the following summer that Keppel was back with Bedford's new instructions and met with a friendly reception. The consul was instructed 'if any probability of obtaining restitution of effects...to make the best bargain you can' in conjunction with Keppel and he was given 'latitude to yield a little in respect of money'. The fact that the Algerine ambassador was very earnestly soliciting the issue of new passes was suggested as affording a good opportunity 'to make a merit of such condescension' and try to get concessions in return. Not only were threats being replaced by a disposition to bargain but presents were made both to the Dey and to eight other persons 'with power to facilitate or obstruct trade'.

The Dey was no less conciliatory. He suggested that those who had actually suffered loss should appoint representatives through whom they might receive compensation in the form of special licences and commercial concessions, especially at Port Stora the former French factory, or, in other words, compensation at his own expense. He also offered to add a clause to the Treaty granting special exemption to His Majesty's Packets, to give some extra advantages for the service of garrisons at Port Mahon and Gibraltar and to reduce the duty on English imports from 5% to 3%.

These were substantially accepted, more as a visible symbol of national prestige, perhaps, than on account of their actual value. The privileges at Port Stora, which were already enjoyed by us to a large extent and soon lapsed again to the French together with most of the foreign trade, were to be regarded apparently as compensation for the blow to national pride. Great Britain was to be preferred (as it indeed already was) to all other nations throughout the Regency, and the consul was to correspond with his

colleagues in Barbary to ensure uniformity of practice where ships with His Majesty's commission were concerned. The omission of any reference to the owners of the cargo suggests that they were in reality Portuguese.

Two lessons might have been drawn from the satisfactory and, as it proved, final settlement of this question: the facts that solutions of such difference could always best be reached through reasonable negotiation and that our treaties urgently required clarification. Commodore Clevland would have warmly endorsed both these conclusions a few years later.[1] Fortunately Keppel was of a friendly and reasonable disposition and apparently, like the consul, appreciated the Dey's attitude. He does not seem to have carried away an unfavourable opinion of Algiers and more than thirty years later showed his interest by recommending, as a matter of 'public utility', the appointment of a consul, personally unknown to him, on the ground that it would be agreeable to the Algerines who had liked and respected his father. In view of such an unusual appreciation of the situation it seems unfortunate that Keppel was not again employed on the Coast and it is worth recording that his candidate became conspicuous as the only really satisfactory consular appointment there over a long period.

To the urgent question of treaty revision, official inertia or indifference seems to have presented an insuperable obstacle. The consul whom Keppel carried to Tripoli had pleaded with the home authorities for the re-drafting of our treaties with these states to make them 'more regular and uniform' and 'more clear and intelligible to the public' and a Secretary of State had previously had to point out how 'inequitable' a strict interpretation of one important clause was to Algiers. Keppel was anxious to do all that he could, but owing to inexperience and lack of official guidance he was only saved by the opposition of local rulers from rather adding to the existing confusion. It is lamentable to find that as late as 1805 the vital provision about Mediterranean passes was described as little understood and frequently not observed, and our principal difficulties with the Barbary States up to the end of the Napoleonic war seem to have arisen from its violation either in the letter or the spirit.

1 These treaties were negotiated by naval officers and are described by Consul Bruce, with his customary exaggeration, as 'a monstrous heap of confusion'.

[The author of the foregoing article is Sir Godfrey Fisher, K.C.M.G., a former British Consul at Tahiti and Los Angeles, and Consul-General at Naples, Antwerp and San Francisco. Ed. *M.M.*]

THE NAVIGATION OF THE NORSEMEN

By G. J. Marcus

THE immense scope and range of the ocean navigation of the North in the Middle Ages is even to-day, perhaps, not fully appreciated outside the confines of Scandinavia. The long-continued traffic between Norway, Ireland and the Sudrey Islands (Hebrides), and the Faeröes, Iceland and Greenland, serves as a complete and convincing refutation of the exploded fallacy (which is, none the less, an unconscionable time dying), viz. that it was not until the introduction of the magnetic compass in the later Middle Ages that European mariners dared to venture out of sight of land.

The *regularity* of this ocean navigation was one of its most impressive aspects. Apart from certain periods of decline and retrogression it went on, year after year, decade after decade, century after century. Nor must it be forgotten that there were times when the sailings that we read of in the sources represent a fraction of those actually made: for while the ventures of chieftains and other notables are described, often in considerable detail, the voyages of less distinguished men would usually go unrecorded. The whole matter has given rise to one of the most intricate and baffling problems in the annals of the sea. The question has frequently been asked: How were the Norsemen able, with such apparent confidence and certainty, to cross and recross enormous stretches of open sea, at a time when not merely the quadrant and astrolabe, but even the magnetic compass, were as yet unknown?

The explanation would appear chiefly to lie, in the first place, in the excellence of their shipbuilding; and, in the second, in their mastery of simple, but sufficiently effective, methods of navigation.

By the reign of Haraldr Hárfagri in the second half of the ninth century the Norsemen had evolved a strong ocean-going craft, the *hafskip*, which was capable of transporting as many as two or three dozen men, a stock of cattle, the necessary food and fodder, and the furniture of a farmstead, far across the *haf*, or Western Ocean. It was with such craft as these that the great emigration to Iceland, an event altogether unprecedented in European history, was accomplished. The *hafskip* was somewhat shorter than the long-ship (*langskip*); she drew more water, was broader in the beam, and of a much higher freeboard: in strong winds she was a faster sailer. She was clinker-built and was driven by one large square sail spread on a yard, which was hoisted and lowered by a halyard. (The larger craft had a windlass,

vindáss, by means of which the sail was raised and lowered.) The sail, generally made of wadmal, could be shortened in strong winds by a method of reefing. The cargo, covered over with ox-hides, on top of which was lashed the ship's boat, was stowed in an open hold amidships. The oars, which were few in number, were rigged fore and aft; they were commonly used for getting the ship in and out of port, and for assisting her to go about: they would be useless on a lee shore, or in bad weather. The vessel's hull was caulked and tarred. Like the *langskip*, the *hafskip* was double-ended and steered by a side-rudder, hung over the starboard quarter. The efficiency of the side-rudder was clearly demonstrated in 1893 when a replica of the Gokstad ship crossed from Norway to America. The ship's tackle and anchor-cable were usually made of *svarðreip* (walrus hide) on account of its great natural strength. Though no actual description of a *hafskip* has survived the centuries, there is a good description of one in *Egils saga*.[1]

A rather serious mistake which is occasionally made is to suppose that these ocean voyages were made by vessels of the Gokstad type. For instance, Professor Fisher writes that 'the long Viking warships, driven by oar and sail, planted colonies on the bleak shores of Greenland and, six hundred years before the voyage of Columbus, explored the North American coast'. Similarly Miss Carus-Wilson declares that 'big timber for the building of churches was laboriously brought in long ships across the ocean to Iceland'. Professor Thompson has fallen into the same error, as has also Mr Brooks. In point of fact in the half-century or so which saw the settlement of Iceland there is not a single reference to any *langskip* crossing the ocean. The vessel which Haraldr Hárfagri presented to Ingimundr (who had brought him a polar bear and her cubs from Iceland, the first that had ever been seen in Norway) was a *hafskip*, not a longship. It was said that the sea between the two countries (i.e. Norway and Iceland) was so wide that longships might not make the crossing. Even the much shorter ocean passage between Norway and the Faeröe Islands was believed to be too much for the long, slender *langskip*, with its low freeboard and comparatively frail construction. 'Longships cannot get there on account of the gales and tidal streams, which are often found to be so strong that a merchantman can scarcely bear up against them.'[2]

1 W. Hovgaard, *The Voyages of the Norsemen to America* (1914), pp. 51 ff.; Brøgger and Shetelig, *Vikingeskipene* (1950), pp. 285 ff.; Carl V. Sølver, *Mariner's Mirror*, Vol. xxxii, no. 2, p. 115; *Egils saga*, ed. G. Jónsson (1946), cap. 17. See also the description of the ship *Stígandi* in *Vatnsdalers' saga*, trans. Gwyn Jones (1944), pp. 52, 55.

2 H. A. L. Fisher, *History of Europe* (1936), p. 180; Power and Postan, *English Trade in the 15th Century* (1933), p. 158; J. W. Thompson, *Economic and Social History of the Middle Ages* (1928), p. 282; F. W. Brooks, *English Naval Forces, 1199–1272* (1932), p. 4; *Fornmanna sögur* (1825), iv, 280; xi, 182; *Færeyinga saga*, ed. Rafn (1832), 100; *Islandske Annaler*, ed. G. Storm (1888), p. 196; Brøgger and Shetelig, *op. cit.* p. 286; Alexander Bugge, *Den Norske Sjøfarts Historie* (1923), p. 112.

The *hafskip* was essentially a sailing-vessel. Frequently we hear of crews waiting, sometimes for weeks on end, for a fair wind. Their dependence upon the seasonal easterlies and westerlies can be gauged from the recurrence in the sagas of the ominous phrase *tók af byri*, 'the fair wind ceased'. In favourable circumstances the voyage from Norway to the Shetlands would take a couple of days. From Norway to Iceland would take from 12 to 20 days.[1] The Greenland passage, of course, was a far more formidable matter. At best it might take several weeks; at worst it might run to as many months. Occasional references occur to 'long spells of drifting', and to ships tossed about on the high sea for most of the summer and autumn months, arriving at their destination 'only a little before the winter', or 'just as the winter began'. Sometimes we hear of ships that were unable to complete the voyage and were forced to make for the nearest land. Judging from the advice given by the merchant Thórarinn to King Óláfr Tryggvason, it would seem that this was a fairly common occurrence on the Greenland route, and might even happen (according to the Icelandic annals) on the shorter passage to Iceland.[2] For instance, in 1326 the outward-bound merchantmen never made Iceland at all, but were driven back to Norway; and again, in 1344, 'No ship came to Iceland, for all, before they could make their destination, were driven back to Norway'.

It is perhaps not generally realized that the *hafskip* of the Viking Age was not much smaller, if at all, than the 'two Barkes' with which John Davis, in 1585, went in search of the North-West Passage. The ship which Thorfinnr Karlsefni used on his expedition to Vínland must have been of quite considerable size; for as we learn from *Flateyjarbók* he took with him a crew of sixty men and five women, as well as food and fodder for a long voyage, and all kinds of cattle, 'because they intended to settle in that country if they could'. In any case a 40- or 50-ton trading-ship of the tenth century was fully as seaworthy as many later vessels of considerably greater tonnage.[3] With its light, flexible construction it would rise easily at the scend of the heavy western sea;[4] and from the Icelandic sagas we learn how it rode out many a hard gale.

In the earlier Viking period it would seem that the Norsemen were unable to sail by the wind. Towards the end of the ninth century Óttarr, as we know, only knew how to sail before the wind; and whenever he altered course, he had to wait for the wind to change. There are a number of promontories on the coast of Norway with the significant name of *Stad*

1 A record run was made by the merchant Thórarinn Nefjólfsson in 1024, from Moerr in Norway to Eyrar in the south-west of Iceland in 8 days (*Fornmanna sögur*, IV, 283).

2 *Fornmanna sögur*, IV, 176.

3 The basin-shaped cog, which was later to supplant the Norse *hafskip*, was by no means so good a sailer.

4 Hovgaard, pp. 52, 63.

which give testimony of the numerous occasions on which a vessel would be obliged to lie and wait for a change of wind. Later a spar or tacking-boom called the *beitiáss* (Ic. *beita*, 'to sail near the wind') was introduced to brace the yard well forward. With the help of this spar the large square-sail could be close-hauled, enabling the ship to sail with a beam-wind and even to tack. In the Icelandic sagas there are occasional references to beating up into the wind.[1]

There were, in all, three types of *hafskip*. The earliest of these was the *knörr*, which was used in the early Middle Ages for the navigation to the Faeröe Islands, Iceland and Greenland. In the sagas there is frequent mention of the *knörr*, which is also commemorated in many place-names in Norway and Iceland. By the early half of the fourteenth century the *knörr* appears to have been supplanted by the *búza*. Though there was clearly some difference between the two types, exactly where the distinction lay is unknown to us. The *búza* was a longship originally, and was used as a fighting-ship. But in the thirteenth-century *Sturlu saga* and in the Icelandic annals she is frequently mentioned as a merchantman. Most of the Norwegian vessels which sailed to England in the early years of the fourteenth century, and which were later employed in the Iceland trade, were *búzur*. The *búza* like the *knörr* was essentially a sailing vessel. The third type of ocean-going ship was the *byrðingr*, which was short and broad in the beam and somewhat smaller than either the *knörr* or *búza*, and with a smaller crew, comprising only about a dozen men. The *byrðingr* was largely employed in the coasting trade; notably in the carriage of stockfish from the Lofoten Islands to Bergen. But there were also *byrðingar* which were used for longer voyages, to Iceland as well as to the Faeröes.[2]

From the anonymous *Konungs Skuggsjá* ('the King's Mirror'), a fascinating and informative treatise written in the form of a dialogue between father and son about the middle of the thirteenth century, we learn something about the upkeep and repair of these vessels. 'If you are preparing to carry on trade beyond the seas and you sail your own ship, have it thoroughly coated with tar in the autumn and, if possible, keep it tarred all winter. But if the ship is placed on timbers too late to be coated in the fall, tar it when spring opens and let it dry thoroughly afterwards. Always buy shares in good vessels or in none at all. Keep your ship attractive, for then capable men will join you, and it will be well manned. Be sure to have

1 *Egils saga*, cap. 33; *Grettis saga*, ed. G. Jónsson (1946), cap. 8; *Orkneyinga saga* (1780), 296; *Fornmanna sögur*, II, 230: III, 26: X, 71; *Flateyjarbók* (1860), II, 482. Certain craft, however, were clearly unable to beat. *Sneru þá öll skipin aptr til hafnar, þau sem eigi fengu beitt.*—*Flateyjarbók*, III, 146.

2 Hjalmar Falk, *Altnordische Seewesen* (1912), pp. 108ff.; Bugge, p. 111; Brøgger and Shetelig, pp. 285ff.; *Diplomatarium Norvegicum*, XIX, no. 436.

your ship ready when summer begins and do your travelling while the season is best. Keep reliable tackle on shipboard at all times, and never remain out at sea in late autumn, if you can avoid it.... Whenever you travel at sea, keep on board two or three hundred ells of wadmal of a sort suitable for mending sails, if that should be necessary, a large number of needles, and a supply of thread and cord.... You will always need to carry a supply of nails, both spikes and rivets, of such sizes as your ship demands; also good boat hooks and broad-axes, gouges and augers, and all such other tools as ship carpenters make use of. All these things that I have now named you must remember to carry with you on shipboard, whenever you sail on a trading vessel and the ship is your own.'[1]

From the same work we also learn what voyages were practicable at what seasons. In answer to his son's enquiry about the proper time of year for putting to sea the father declares that it is impossible to lay down a hard and fast rule, 'for the seas are not all alike, nor are they all of equal extent. Small seas have no great perils, and one may risk crossing them at almost any time; for one has to make sure of fair winds to last a day or two only, which is not difficult for men who understand the weather.... But where travel is beset with greater perils, whether because the sea is wide and full of dangerous currents, or because the prow points towards shores where the harbours are rendered insecure by rocks, breakers, shallows, or sand bars—whenever the situation is such, one needs to use great caution; and no one should venture to travel over such waters when the season is late.'

'Now as to the time', continues the father, '... it seems to me most correct to say that one should hardly venture over-seas later than the beginning of October. For at that time the sea begins to grow very restless, and the tempests always increase in violence as autumn passes and winter approaches.' He goes on to say in the following chapter: 'Men may venture out upon almost any sea except the largest as early as the beginning of April. For at that time when we date 16 March, the days lengthen, the sun rises higher, and the nights grow shorter.' All of which, by the by, is in fairly close accord with the testimony of the sagas and the Icelandic annals.[2]

Konungs Skuggsjá paints a vivid picture of the life of the seafaring trader of those times; it constitutes, indeed, one of our most valuable sources of information regarding the merchant mariner of the North. It is a fitting memorial of the great days of Hákon Hákonarson: its outlook is consistently matter-of-fact, prudent and practical: it is refreshingly free from contemporary superstitions: and its unknown author has an agreeable knack of usually putting the matter in a nutshell. Thus: 'The man who is to be

1 *Konungs Skuggsjá*, trans. L. M. Larson (1917), p. 83; *Flateyjarbók*, II, 476; Bugge, p. 192.
2 Larson, pp. 157, 161; *Laxdæla saga*, ed. G. Jónsson (1946), cap. 43.

a trader will have to brave many perils, sometimes at sea and sometimes in heathen lands, but nearly always among alien peoples; and it must be his constant purpose to act discretely wherever he happens to be. On the sea he must be alert and fearless....'

He must indeed.

* * *

To account for the wonderful achievements of the mariners of the Viking Age the attempt has sometimes been made to attribute it all to a mysterious factor vaguely referred to as 'instinct'. Yet what, after all, is this same 'instinct' but the knowledge and skill derived from long experience? To explain away the ocean navigation of the Norsemen in such a way is merely begging the question.

By taking careful note of the direction of wind and sea, mariners might keep their craft more or less on the proper course, and up to a point their very skilful D.R. would see them through. But consequent upon gales or thick fog it often happened that they lost their reckoning altogether and then would come upon the luckless crew the state of 'not knowing the way at sea' (Ic. *hafvilla*), to which there is frequent reference in the sagas.[1] Even to discover the mist-enshrouded Faeröes group was no mean feat in the pre-compass era.[2]

Nor, again, was it a case of 'hit or miss' navigation. The facts speak for themselves. Throughout a period of several centuries this ocean traffic was carried on with no more than a reasonable proportion of losses over what was even in the spring and summer months one of the roughest and most perilous sea-routes in the world. For here was no region of steady trades or seasonal monsoons. In the unsettled conditions of these high latitudes the weather could never be depended upon; sudden changes of wind were of common occurrence; the heavens were often obscured behind mist or cloud; and added to all these were the hazards of cross-current navigation.[3] The navigators aimed to arrive at their proper destination: the Faeröe Islands, one of the havens of Iceland, Hvarf in Greenland, or wherever it might be. If they made their landfall too far to the northward they said so. If they fetched up in Iceland instead of in Greenland, or if they were forced westward to Greenland instead of making an Iceland port, they said so too. Many such instances are recorded in the sagas. Bjarni Herjúlfsson, sailing from Iceland to join his father in Greenland, was forced off his course and

1 *Laxdæla saga*, cap. 21; *Njáls saga*, ed. G. Jónsson (1947), cap. 83, 153; *Finnboga saga*, ed. G. Jónsson (1947), cap. 10; *Fornmanna sögur* (1825), III, 181; *Hauksbók*, ed. F. Jónsson (1892), 429; *Flateyjarbók*, I, 431, 452; *Grøn. hist. Mind.* III, 469.

2 See Niels Winther, *Færøernes Oldtidshistorie* (1875), p. 36.

3 That throughout this era there was a current setting to the northward is apparent from the fact that many vessels sailing between Norway and Greenland found themselves cast on the shores of Iceland. *Konungs Skuggsjá*, moreover, reveals some knowledge of ocean currents; Larson, p. 157.

arrived off the eastern seabord of North America; yet within two or three weeks he had safely traversed a part of the ocean totally unknown to him and to his crew, and joined his father in Herjólfsnes in the new colony. It says much for the high standard of navigation and seamanship[1] among Bjarni's contemporaries that such a feat was taken so much for granted that, instead of being acclaimed for what he had achieved, Bjarni on his arrival in Greenland found himself somewhat severely criticized for not having followed up the new discovery.

The Norsemen of the Viking Age and their successors are to be accounted some of the most daring and accomplished seamen known to history. For centuries they had no compass, but shaped a course across the open sea by means of azimuths of the heavenly bodies.[2] It is possible and even probable, as Captain Sølver has suggested in his *Leiðarsteinn*, that they used some kind of bearing-dial; but of this there is no certain evidence. It would appear that they were the first Europeans to carry on a more or less regular traffic across the Western Ocean by means of a crude kind of nautical astronomy. To provide an adequate explanation of these early ocean voyages is not easy. The problem is mainly one of lack of material. Though the sagas and other sources are full of information about shipbuilding and rigging there is little enough to be gleaned as to the Norse methods of navigation. But what little there is, is highly significant and to the point.[3]

All the available evidence goes to show that the ocean navigation of the Norsemen may be resolved into three main elements. As may be seen from these sources, it was based on a very skilful dead reckoning, which was checked by an occasional observation of the heavenly bodies, and by such adventitious aids to navigation as seabirds, whales and ice-floes.

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1 For the seamanship of the Norsemen see *Vestfirðinga sögur* (1943), 223; *Biskupa sögur* (1858), I, 422, 484: II, 50; *Fornmanna sögur*, II, 16, 107: VII, 67: VIII, 202, 209, 379: IX, 20, 21: X, 163, 204: *Fornaldar sögur* (1829), II, 77, 515: III, 118, 630; *Laxdæla saga*, cap. 18; *Egils saga*, cap. 33; *Flateyjarbók*, II, 258. No such superb 'seascapes' are to be found in English literature until the Elizabethan era.

2 The earliest reference to the magnetic compass in the North occurs in the fourteenth century *Hauksbók*: there is no mention of it in Sturla Thórdarson's version of the *Landnámabók*, a couple of generations earlier. It is clear too from the numerous references in the sagas to the state of *hafvilla* that the compass was not in use in earlier times. Cf. *Landnámabók*, ed. F. Jónsson (1900), p. 5. In *The Mariner's Mirror*, Vol. XXIII (1937), p. 99, Dr Heinrich Winter has argued that the *leiðarsteinn* was known to Norsemen of the Viking Age. But he advances no convincing proof and ignores the contrary evidence cited above.

3 By far the best introduction to the problem is an admirable paper by Carl V. Sølver, *Leiðarsteinn*, published by the Viking Society for Northern Research in *Old Lore Miscellany* (1946), Vol. X, pt, vii. The great merit of Captain Sølver's paper is that it is the work of a professional seaman who draws attention to certain governing factors which are frequently overlooked by the *savant* in his study. See also the same author's *Imago Mundi* (1951), p. 218. For the nautical astronomy of the Norsemen, see Falk, pp. 19, 54; O. S. Reuter, *Germanische Himmelskunde* (1934), pp. 726ff.

In Sturla Thórdason's version of *Landnámabók* (*c.* 1260) the distances between various points in the Western Ocean are reckoned in terms of 'day's sailing' (Ic. *doegr-sigling*). A word of explanation is required here. Strictly speaking, the term *doegr* meant a period of twelve hours: since, according to *Rímbegla*, in a day there were two *doegra*, and in a *doegr* there were twelve hours. But in point of fact *doegr-sigling* sometimes covered twelve, and sometimes twenty-four, hours. And it would appear to have represented a distance, rather than a period of time.[1]

The distances given in *Sturlubók* are as follows. From Stad (Norway) west to Horn (Iceland), seven days' sailing. From Snaefellsnes (Iceland) to Jolduhlaup (Ireland), five days' sailing. From Langanes (Iceland) to Svalbarð (Spitzbergen), four days' sailing. In the fourteenth century Ívar Bárðarson gives the course from Snaefellsnes to Greenland (Eastern Settlement) thus: 'Item when one sails from Iceland, one should shape one's course from Snaefellsnes...and then sail due west one day and one night, but then slightly south-west to avoid the aforesaid ice...and then one day and one night due north-west, and so one comes right under the aforesaid high land of Hvarf in Greenland, under which lieth the aforesaid Herjólfsnes and Sandhaven.' (Hvarf was the name the Norsemen gave to the bold and outstanding *massif* to the north of Cape Farewell.) From these and other sailing directions it is clear that dead reckoning was a prime factor in the ocean navigation of the North.[2]

But, as had already been said, however excellent this D.R. it plainly had its limitations. One may read in the sagas of many occasions when a crew wholly lost their reckoning. In such a plight, according to *Flateyjarbók*, were Bjarni Herjólfsson and his men, when the providential appearance of the sun gave them their bearings. Again, in *Niáls saga* there is the significant statement: 'Many lands there are...which we might strike with the weather we have had, the Orkneys, or Scotland, or Ireland'; and later on in the same saga: 'Then they quite lost their reckoning.' It is necessary to be on one's guard, the more so as in recent years there has been a tendency somewhat to exaggerate the part played by D.R. in the ocean voyages of the past. What may be done successfully enough in coastal waters is quite a different matter in a passage of over 1000 nautical miles, far out of sight of land, and in face of gales, fogs and unknown surface currents. Under such conditions D.R. may become indeed 'a blind and stupid pilot'. In short, granted a considerable element of luck, dead reckoning and dead reckoning alone,

1 *Landnámabók*, p. 129; *Rímbegla* (1780), p. 482; Falk, p. 16; Hovgaard, p. 63; G. M. Gathorne-Hardy, *The Norse Discoveries of America* (1921), p. 196.

2 *Beskrivelse det Gamle Grønlands* (1930), ed. F. Jónsson, p. 2.

might answer for an occasional successful passage: but never for the regular ocean navigation of the Viking Age.[1]

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Another prime factor in the ocean navigation of the North was nautical astronomy. It is only in the last forty years or so that proper attention has been paid to this important factor; without which, indeed, it is impossible to account for the success and continuance of these voyages.

The Scandinavian colonists of Iceland and Greenland were accustomed to take note of the altitude both of the Pole-star and of the midday sun; and though most of the observations that we read of in the sagas and elsewhere were evidently made on land, there do exist certain references, as will later appear, to observations made at sea. Unfortunately, neither on land nor at sea is it known exactly *how* they made these observations. They would not, of course, be able to compute their latitude in terms of degrees and minutes; but it seems that they could work out their northing or southing by roughly measuring the height of the Pole-star, or the meridian altitude of the sun. What latitude meant to these Norsemen was simply the elevation of *Polaris*, or the midday height of the sun; the measured length of a shadow, or the azimuth of the sun at sunrise and sunset. In any case, whatever may have been the method or methods they used, it would appear from the results of their observations that they were at any rate sufficiently accurate to serve their purpose. In our own days of ultra-scientific navigation it is sometimes hard to realize that latitude can even be calculated (though, needless to say, only very approximately), by simple ocular observation. Columbus on his return voyage in 1493 judged that he was somewhere near the latitude of Cape St Vincent by the height of the Pole-star. Nor was he more than a couple of degrees or so out in his reckoning.[2]

From the tenth century onwards there is abundant evidence of the

1 *Flateyjarbók*, I, 431; *Njáls saga*, cap. 83, 153; S. E. Morison, *Admiral of the Ocean Sea*, I, 244; D. Burwash, *English Merchant Shipping*, 1460–1540, p. 9; *Leiðarsteinn*, 309ff., 320; *Imago Mundi* (1951), pp. 212, 216ff. It is necessary also to beware of the exaggerated claims made by the partisans of the other school, who at times have produced some really amazing anachronisms concerning 'astro.-nav.' in these early times. Thus, writing of Northern mariners in the thirteenth century, one such historian declares: 'Hour glasses of sand served to give them a time unit for longitude, which was checked by taking an observation at noon with astrolabe.' See Brooks, p. 26. Cf. Heinrich Winter in *M.M.*, Vol. XXIII (1937), p. 101.

2 See *Hakluyt Society*, Ser. I, Vol. LXXXVI, p. 171; S. E. Morison, I, 410. Cf. Lieutenant J. W. McElroy, U.S.N.R., in *American Neptune*, Vol. I (1941), p. 212: 'The eastward and westward sailing tracks selected by Columbus were in my opinion not based upon scientific observation or secret knowledge, but were a combination of good fortune, better judgment, and the best traditions of navigation. Just like dead reckoning shipmasters down to the present century, the Admiral sought the parallel of latitude upon which his destination was presumably located and steered along that line until he reached his objective.'

Icelanders' knowledge of practical astronomy. There was Thorsteinn Surtr 'who discovered the summer eke', and to whom, about 960, the revision of the Icelandic calendar was owing. Shortly after the turn of the century, at Leifr Eiríksson's camp in Vínland, the difference between the latitude of the newly discovered country and that of Iceland and Greenland was noted by observing the length of the midsummer day. In the early part of the eleventh century, there was Oddi Helgason, who was accustomed to study the stars, and who, at any rate for a period, followed the sea. Stjörnu Oddi, or 'Star Oddi', as he is generally called, worked out a table of the sun's azimuth and made some surprisingly accurate observations of the sun's declination from the winter to the summer solstice. It is to be noted that Stjörnu Oddi's observations of the sun's altitude are expressed, not in degrees, but in *hálft hvéla* ('half-wheel', or half the sun's diameter); moreover, Oddi uses the old Norse names for the airts, e.g. *landsuðr*, not 'south-east': *útnorðr*, not 'north-west'. Mention must also be made of Einarr Eyjólfsson in the *Ljósvetninga saga* who 'used often to walk out of nights and look at the stars and moon, and he had a good understanding of them'; and of Nicholas, Abbot of Tverra, who during his travels in the Holy Land (*c.* 1150) discovered the latitude of a place on the banks of the Jordan by a homely, but tolerably effective, rule-of-thumb, method. The use of the quadrant for measuring the height of the Pole-star (on land) is mentioned in the fourteenth century *Rímbegla*. There were also methods of observing the approximate height of the sun. We hear of expressions like *til þess sól er skapthá*, 'the sun is shaft-high above the horizon', and *lágr veggr undir sólina*, 'a low wall under the sun'.[1]

Admittedly none of the instances referred to above is concerned with the sea and seafaring. But it is in the highest degree improbable that these Norsemen, knowing as they certainly did the significance of latitude on land, would not be similarly aware of the practical importance of latitude at sea. Certain phenomena, indeed, must almost have forced themselves on their notice. Thus, they could hardly fail to observe that as they coasted down the long western seaboard of Scandinavia the height of the sun at noon would gradually increase; and conversely, that as they travelled north-

1 The following sources throw a good deal of light on the Scandinavian knowledge of practical astronomy: *Íslendingabók* (1930), cap. 4; *Íslendinga sögur* (1939), IX, 392; *Ljósvetninga saga*, ed. G. Jónsson (1946), cap. 6; *Grettis saga*, cap. 7; *Egils saga*, cap. 53; *Flateyjarbók*, I, 539; *Alfræði íslensk*, II, 294; *Fornmanna sögur*, IV, 381; *Fornaldar sögur*, III, 369; *Alfræði íslensk* (1914), I, 23: II, 48, 72, 91: III; *Grágás, Konungsbók* (1852), 27; *Staðarhólsbók*(1879) 33; *Symbolae ad geographiam medii aevi*, ed. E. C. Werlauff (1821), p. 31; *Rimbelgla* (1780), p. 472; Larson, p. 98.

It has been established within recent years that certain of the observations made by the Scandinavians were remarkably accurate. Cf. M. M. Mjelde, *Saga Book of the Viking Society*, X, 57; Reuter, pp. 597, 615, 655.

ward again it would gradually decline. Similarly on every clear night it would be seen that the *leiðarstjarna*, or Pole-star, was sinking lower and lower, as they sailed southward; and conversely, that it was rising higher and higher, as they steered northward. When later in the Viking Age they struck out across the Western Ocean to the Faeröes and Iceland they must surely have observed that if they got too far south they would have longer nights, and, on the other hand, if too far north, they would have shorter nights, or no real darkness at all. And again, when they travelled from Norway to England they must have noted that certain of the circum-polar stars which do not set in the latitude of Halogaland would sink below the horizon as their ship sailed southward down the North Sea, and would rise again on their return. Moreover, they must have known of some method for determining the approximate moment when the sun reached the meridian, *sól í fullu suðri*, for in the high latitudes they would of course be unable to get their bearings from the rising and setting of the sun: and such a method should have enabled them, with sufficient accuracy, to measure the sun's height.

Consider the immense range of Scandinavian maritime enterprise in the Viking era. The mariners of that time possessed a unique knowledge of coastal navigation on both sides of the Atlantic. Unlike the seafarers of the Mediterranean, they were accustomed to make long voyages from *north to south*, as well as from east to west. From the North Cape to the Moroccan coast is more than 35 degrees of latitude; in the Scandinavian homeland itself, the Arctic and Atlantic coasts trend southward for over 12 degrees. On the famous voyage which led to the first sighting of the American continent Bjarni Herjólfsson must have traversed rather more than 20 degrees of latitude. The recorded observations of the Norsemen throughout the Middle Ages covered a wide range of latitudes: e.g. somewhere south of lat. 40° N. in Vínland (North America) about A.D. 1000; Flatey Island, off the north coast of Iceland (lat. 66° 10′ N.) in *c.* 1140; on the banks of the Jordan (lat. 32° N.) in 1150; in Baffin's Bay (lat. 74° N.) in 1267. Several other instances might be added to the list. Dr Reuter is of opinion that this remarkable knowledge of practical astronomy was in large measure fostered and developed by the far-reaching voyages of the Viking era, such as Óttarr's expedition round the North Cape to the White Sea.[1]

A well-known passage in *Flateyjarbók* tells how Bjarni Herjólfsson, on his way from Iceland to Greenland, was blown off his course. It seems that on putting out from Iceland 'they sailed for three days before they lost sight of the land; but then the fair wind failed, and there came north winds and fogs, and they did not know where they were going, and it went on in this

1 Reuter, p. 725 and Pl. 85.

way for many days. Afterwards they saw the sun, and so were able to get 'their bearings' (roughly, 'to divide the horizon').[1]

Now it is at least within the bounds of possibility that in the routine operation, *deila ættir*, was included a rough calculation of the height of the midday sun. For a lengthy period they had been drifting they knew not where. But seeing how far southward by this time their craft had been driven, the sun, even to the naked eye, must have been noticeably higher in the heavens. Also the nights would be longer and darker. At all events on sighting the unknown shore Bjarni Herjólfsson immediately altered course, and during the next fortnight or so they worked back to their proper northing and arrived eventually at their destination, Herjólfsnes in Greenland.

By day the Northern seaman steered by the sun. Before the advent of the magnetic compass, it was, indeed, his only guide when out of sight of the land. According to an old Anglo-Saxon poem (*c.* 850) mariners were accustomed to rely on the sun 'to guide their craft across the sea and to bring it to the land'. We have a striking example of this in the voyage of Óttarr. For at the time of year when Óttarr made his bold venture into the unknown the stars were invisible: beyond the last known sea-mark, with the North Cape well astern, Óttarr had to get his bearings as best he could from the sun, and from the sun alone. In the zone of the midnight sun he could only distinguish his airts when the sun crossed the meridian: that is to say, either at noon, *sól í fullu suðri*, or else at midnight. So it was that Óttarr was able to speak of *westan windes* and *ryhte nordern windes*. This is also the case with regard to the latter part of the Frisian voyage, in the twelfth century, referred to by Adam of Bremen. In short, in the high North, during the summer months when such voyages were invariably made, the sun alone could guide the mariner across the waste of seas.[2]

By night the sailor steered by the stars, especially by the Pole-star. The supreme importance to the seafarer of this, the *leiðarstjarna*, or 'guiding star', is plainly revealed in the Anglo-Saxon poem referred to above, and later in several of the Icelandic sagas. Like the midday sun, the *leiðarstjarna* could not only give the seaman his bearings, but might also, by its height above the horizon, give him some notion of his northing or southing, and thus assist him to keep on his proper course. It may very well have been for this reason that many of the voyages of the Viking era were made in the spring or autumn, when the stars were still visible in these high latitudes. For instance Freydis, on the return voyage from Vínland (*c.* 1016), loaded her

1 *Flateyjarbók*, I, 431.

2 C. W. Grein, *Bibliothek der Angelsächsischen Poesie* (1857), II, 352; *Fornmanna sögur*, VII, 32; *Orosius* (1859), pp. 19, 20; Adam of Bremen, *Gesta* (1876), IV, 39, 40; Reuter, p. 729.

ship early in the spring, made a prosperous voyage, and came back to Eiríksfjörðr early in the summer.[1]

In the thirteenth century the whole matter becomes clearer. We have now several valuable sources of evidence. In the first place there are the two passages in *Biskupa sögur* describing how a vessel's *sólbyrðin*, or 'sun-boards', had been shorn off by a heavy sea. The late Professor Hjalmar Falk was the first to draw attention to the significance of these two passages and to suggest that the 'sun-board' was some kind of device for measuring the height of the midday sun. It was his belief that the shadow cast by the *sólbyrði* gave a rough indication of the vessel's northing or southing. If Professor Falk's interpretation is correct we have here one of the earliest methods of 'taking' the sun at sea.[2]

No less significant, perhaps, are the sailing directions which now begin to appear. In Sturla's version of *Landnámabók* it is laid down that the course for Hvarf in Greenland is 'due west from Bergen'. From this it is apparent that the Norsemen knew that Bergen and Hvarf lay in approximately the same lattitude. (Bergen lies in lat. 60° 4′ N., Cape Farewell in lat. 59° 45′ N.) As Reuter has argued in *Germanische Himmelskunde*, since the variation of the compass was then unknown, the relative position of these two places, separated by a distance of so many hundreds of miles, must have been determined, not magnetically, but by astronomical observation.[3]

In Haukr Erlendsson's later version of *Landnámabók* there is an important interpolation in the sailing directions. The course is now given in greater, and, so far as can be verified, in accurate and seamanlike detail. 'From Hernum in Norway sail due west for Hvarf in Greenland; and then will you sail north of Shetland so that you can just sight it in clear weather; but south of the Faeröe Islands, so that the sea appears half-way up the mountain-slopes; but steer south of Iceland so that you may have birds and whales therefrom.'

Now the annual trading-ship for Greenland sailed, as we know, from Bergen. It appears, therefore, that she sailed up the coast to make her northing. On arriving off Hernum she was on the parallel of her destination, on a course that would take her north of the Shetlands and south of

1 Grein, II, 351; *Maríu saga*, ed. C. R. Unger (1871), I, 7; *Fornmanna sögur*, X, 112; *Ljósvetninga saga*, cap. 6. It has been suggested that the Norsemen also used the 'South Star', *Wega*, for the purpose of latitude determination. See *Alfræði íslensk*, II, 72; Reuter, p. 721.

2 *Biskupa sögur*, I, 484; II, 50; Falk, pp. 19, 54; Reuter, pp. 598 ff.

3 *Landnámabók*, p. 129; Reuter, p. 728.

It will be seen from the chart that the course from Bergen 'due west for Hvarf' cannot possibly pass within 12 'sea-miles' (approximately 1 degree of latitude) of the south Iceland coast. The explanation may, perhaps, be due to an error in transcription. Cf. *Landnámabók*, 4, 129, for the discrepancy in the distance between Reykjanes and Jolduhlaup as stated by Haukr and Sturla respectively.

4 *Hauksbók*, 4.

ne Faeröes, and then a good way to the south of Iceland (as laid down in ne sailing directions) to a point on the east Greenland coast about 80 miles orth of Cape Farewell. To hold that course she must maintain an approximately constant latitude all the way across the ocean; and if inadvertently he were forced off her course, she must somehow or other work back to t again. For it was scarcely possible for a ship to hold her course across 000 miles and more of open sea, in spite of mists and storms and surface urrents (not to mention variation), by means of the magnetic compass, and he magnetic compass alone. This certainly looks like latitude sailing.[1]

It can hardly escape the notice of the investigator that quite a number of hese sea-routes used by the Norsemen lay along parallels of latitude. The course from Trondhjem to the eastern ports of Iceland lies roughly along he 64th parallel, that between Cape Stad and the Faeröe Islands along the 62nd, and that from Hernum to the east Greenland coast along the 61st. There are also many passages in the sagas from which it would seem that the Norsemen sought the latitude of their destination, and then, with the help of a favouring wind, sailed along that parallel until they arrived at their objective. There is a good example of this in *Grettis saga*. It is related therein that a certain ship 'sailed south by Reykjanes and then south from the land' (Iceland). Her crew made a long and dangerous voyage of it. When they got down into lat. 62° N. or thereabouts they altered course and steered due east, and held that course until they reached the Norwegian coast, running aground at last on a small island called Haramsö, which lies in lat. 62° 36′ N. This also looks like latitude sailing.[2]

But above all it is to *Konungs Skuggsjá* we must turn if we are fully to comprehend the supreme importance to the seafaring trader of a knowledge of practical astronomy. In passage after passage throughout that work particular emphasis is laid on the value of such knowledge. It is clear that the careful study of the heavens ranks high among the 'subjects which', as the anonymous author remarks, 'especially touch the welfare of seafaring men'.[3]

In the same century (*c.* 1267) there is an interesting case of a party of Greenlanders 'taking' the sun while on a hunting expedition up the west

1 It is to be observed that if one were to steer due west (magnetic) from Hernum to Hvarf to-day, one would certainly never arrive at Hvarf. The variation of the compass in the *Hauksbók* era is unknown: but it is most improbable that throughout the later Middle Ages, when the mariner's compass was in vogue in the North, variation was a negligible factor.

2 *Landnámabók*, 129; *Grettis saga*, cap. 17; *Egils saga*, cap. 67; *Eyrbyggja saga*, ed. G. Jónsson (1946), cap. 39; *Njáls saga*, cap. 82, 154; *Fornmanna sögur*, II, 190, 197: IV, 280, 343; *Biskupa sögur*, I, 842. Cf. Reuter, p. 728; *Leiðarsteinn*, 320; *Imago Mundi*, 218. See Admiralty Charts, nos. 12, 245, 246, 2339.

3 Larson, pp. 86, 93 ff., 99 ff., 162; Reuter, pp. 684, 696.

Greenland coast. The passage plainly shows that the Norsemen, even in the remote colony of Greenland, were able, at any rate roughly, to observe the latitude of the sun *afloat*. It is worth noticing, too, that on this occasion they 'took' the sun, not only at midday, but also at midnight. 'It was then freezing there at night, but the sun shone both night and day, and, when it was in the south, was only so high that if a man lay athwartships in a six-oared boat, the shadow of the gunwhale nearest the sun fell upon his face; but at midnight it was as high as it is at home in the settlement when it is in the north-west.'[1]

Finally, there is a case of latitude determination referred to in Faeröese folk-lore. According to this tradition (which was recorded early in the last century by Pastor J. H. Schrøter) Norse seamen of the olden time made use of an ingenious device known as the *sól-skuggafjöl*, or 'sun-shadow-board', which was in effect a floating gnomon. It consisted of a wooden disc inscribed with concentric circles, with a pin or gnomon inserted in the centre: the pin being raised or lowered in accordance with the sun's declination at different times of the year. The *sól-skuggafjöl* was floated in a bowl of water held as steady as possible in the hands of one of the crew. The length of the shadow cast by the gnomon across the circles indicated, within rough limits, their northing or southing.[2]

As previously stated, it is not suggested that the Scandinavians were at any time able to compute their latitude in terms of degrees and minutes. Nor, in point of fact, was any such advanced astronomical and mathematical calculation really necessary. On the whole the most likely explanation, as Dr Heinrich Winter has pointed out, is that each of these circles actually represented the shadow-length proper to the latitude of an important sea-route: e.g. Trondhjem—Horn (on the east coast of Iceland). Cape Stad—Tørshavn (Faeröe Islands), Bergen—Shetland—Cape Farewell. The *sól-skuggafjöl* would enable the navigator, by holding to a given shadow-length throughout the voyage, to maintain a constant latitude all the way across the ocean: and if he should fall off his course, enable him to work back to it again.

Such a fragment of island folk-lore is, of course, far from being the most satisfactory kind of historical evidence. On the other hand, it has to be

1 *Hauksbók*, p. 501; Nansen, 1, 308; Falk, p. 19; Reuter, pp. 595 ff.

This is the only recorded case in Scandinavian literature of latitude-determination on shipboard. It is to be noted that the second observation in particular is of special significance; since it shows that the Norsemen were able, at sea, to 'take' the sun with accuracy comparable, to some extent, with that of their observations made on land. Attention has also to be drawn to the fact that this observation of 1267, like that of the early eleventh century in Leifr Eiríksson's camp in Vínland, was made, not by scholars or ecclesiastics, but by seafarers.

2 Winther, p. 36. Cf. Falk, p. 19; Reuter, pp. 605 ff.

emembered that oral tradition, among a people of Scandinavian stock, and n an isolated community like that of the Faeröe islanders, can be suprisingly ccurate.[1]

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The third factor in the ocean navigation of the North is the one summed up in the words 'adventitious aids'. It is, of the three, by far the most difficult to assess at its proper value. It consists in the information (of widely varying degrees of reliability) to be derived from the experienced observation of natural phenomena such as the movement and distribution of different species of *fauna*, the prevalence of fog in certain areas (e.g. the Faeröes and the Grand Banks), overfalls and ice. To the practised eye, indeed, the Western Ocean cannot have been such an entirely trackless waste of waters as might at first sight be supposed.

This third factor must have played an exceedingly important role in trans-oceanic navigation. It has already been explained how the benefit of having Iceland, as it were, as a convenient 'half-way house' on the long passage between Norway and Greenland was unhesitatingly sacrificed for the superior advantages of the direct route, which was decidedly shorter and free from rocks and other dangers all the way over between the Faeröe Islands and the east Greenland coast. Of his approach to the Faeröes the mariner would receive a certain amount of warning from the swell over the banks and the gathering flocks of seabirds; of his proximity to Greenland, from the significant change in the colour and temperature of the water (the Polar current), and the presence of ice.

The part played by the experienced observation of birds in ocean navigation, not only in the Viking Age, but also in the time of the great discoveries, is of considerable interest and importance. The difference in the distribution of certain species, such as the fulmar petrel and the Brünnich guillemot, might give the navigator some inkling of his northing or southing. It has been remarked that a gradually increasing proportion of the dark variety of fulmar petrel, and also of the Brünnich guillemot, is to be met with as one

1 It is very questionable whether the theory advanced by Dr Winter, to the effect that the *nauticus gnomon*, mentioned by Olaus Magnus in his *Historia de gentibus septentrionalibus*, p. 343, was the instrument used by mariners in the North for 'taking' the sun, is really justified by the evidence. A careful study of the whole passage in the 1555 edition of the *Historia*, paying particular attention to the marginalia, leads one rather to the conclusion that this *nauticus gnomon* was, perhaps, some kind of azimuth compass. That the *nauticus gnomon* and the compass are one and the same instrument would appear to be pretty clearly indicated by the marginal gloss printed opposite this passage, viz. *Compassus nauticus* (no reference here to any gnomon). See also p. 66 of the *Historia*. It is not surprising to find that in the English translation of this work (1658) there is no mention at all of the gnomon, but only of the mariner's compass. Cf. Walther Vogel, *Hansische Geschichtsblätter* (1911), p. 25; Joseph Kulischer, *Allgemeine Wirtschaftsgeschichte*, I, 306; Heinrich Winter, *Hansische Geschichtsblätter* (1937), p. 173, and *Marine Rundschau* (1937), p. 207.

reaches the higher latitudes. In certain seasons the flight-line of migratory birds may have been of assistance. Nearer land there would be the small auks: puffins, common guillemots, etc. These, in the vicinity of island-groups such as the Faeröes which were frequently invisible through mist, must sometimes have served as a useful 'pointer'. From the evidence of the sagas it would appear that the Norsemen carefully observed the birds they sighted at sea. In *Færeyinga saga* a certain crew 'put to sea when they got a wind and went on till they saw birds from the islands'. In *Eiríks saga rauða* Thorsteinn Eiríksson and his companions were driven eastward across the ocean till they sighted 'birds from Ireland'. In *Biskupa sögur* a ship's crew 'drifted southward across the ocean, so that they had birds from Ireland'. Similarly in Haukr Erlendsson's sailing directions the navigator was instructed to 'steer south of Iceland so that you have birds and whales therefrom'. A richer admixture of plankton in the waters to the south of Iceland, through the action of surface currents, might account for a relative abundance of seabirds and whales. Also it is related by modern Icelandic seamen that one first gets 'birds from Iceland' at a point some 150 miles south of the island, which is approximately the distance at which the course, given in *Hauksbók*, passes by the south Iceland coast.[1]

In the Scandinavian sources there are various references to sea-marks, particularly in respect of islands. In the passage from *Hauksbók* already mentioned the navigator is directed to steer south of the Faeröe Islands 'so that the sea is half-way up the mountain-slopes'. In *Óláfs saga helga* there is a reference to a ship steering down the west coast of Norway on a course 'so as to have the sea half-way up the mountain-sides'. Similarly Scandinavian ships often made their departure from, and shaped a course for, well-known promontories, e.g. Cape Stad in Norway, the steep headland of Reykjanes in Iceland, the 'high land of Hvarf' in Greenland. Again, the colour and appearance of the sea may occasionally have given the mariner an approximate idea of his position. In at least one instance a heavy ground-sea warned a ship's crew of their proximity to land. On the far side of the ocean the Norsemen expected to encounter ice, icebergs and ice-floes. From the thirteenth century on, as one learns from *Konungs Skuggsjá*, watch would be kept for the edge of the drift-ice off the east Greenland coast. Towards the end of the long transatlantic voyage to Hvarf the reflection above the horizon of the great Greenland ice-cap (the 'ice-blink') would serve as a welcome sign to the weary mariner that he would soon be in sight

1 *The Saga of the Faeröe Islanders*, trans. M. Press (1934), p. 44; *Hauksbók*, 4, 443; *Biskupa sögur*, 1, 656. Cf. *Ann. Rept. Smith. Inst.* (1892), p. 375; *Proc. Boston Soc. Nat. Hist.* Vol. XL, no. 4, p. 233; J. A. Beckett, *Iceland Adventure* (1934), p. 26. Cf. *Hakluyt Society*, Vol. XLIX, 43; Ser. II, Vol. XIV, pp. 185, 187; Morison, II, 283. See also James Fisher, *The Fulmar* (1952), pp. 289–325.

of land. To sum up, from all these passages in the sagas and other sources one may reasonably infer that the Norse navigator made good use of every adventitious aid.[1]

It is also possible that in the later medieval period the sounding-lead and line were used in this Atlantic traffic. *Konungs Skuggsjá* refers to the 'deepest part of the ocean' between Iceland and Greenland, and in the thirteenth century *Historia Norvegiae* there is an allusion to 'probing the waves with the lead.' There are references to the sounding-line in English and German sources from the fourteenth century on.[2]

* * *

To calculate their longitude the Norsemen probably relied, as in fact did mariners down to comparatively recent times, on their dead reckoning. In this, as has already been explained, they appear to have attained great skill. They may well have used some sort of rough tally system on their courses, as did the Mount's Bay fishermen almost down to the present day. Otherwise such calculations had, of course, to be entirely mental, since they had no charts. Like Columbus several centuries later the Norse navigator was possibly able to form a tolerably accurate estimate of his speed by watching some flotsam or bubbles float by. This D.R. would have to be supplemented and corrected by adventitious aids of the kind already described.

It was customary for crews in the Viking Age to have with them a pilot with intimate knowledge of the waters across which they were to pass and the contours of the coast for which they were bound. On ocean voyages some rough knowledge of the surface currents and the seabirds, whales, walruses, etc., would probably form part of the pilot's mental equipment. The importance attached to such knowledge is clearly shown by the remark made by Bjarni Herjólfsson before he started on his historic voyage. He said that their venture would be regarded as an imprudent one, since none of them had had experience of the Greenland Ocean. It is to be remembered that Thorvaldr Eiríksson took care to consult his brother Leifr about the voyage before setting out for Vínland.

Notwithstanding, however, all the navigator's skill and experience the problem of longitude was the besetting weakness of ocean navigation in the pre-chronometer era. Many of the losses which occurred on the coasts of Norway, Iceland and Greenland were in all probability due to the mariner's

1 *Fornmanna sögur*, IV, 329; *Fornalder sögur*, II, 336; Bugge, p. 122; *Njáls saga*, cap. 83; Larson, p. 138. For the movements of whales in relation to the drift of the ice off the west Greenland coast, see R. Kellogg in the *Smith. Rept.* (1926).

2 Larson, p. 138; *Mon. hist. Norv.*, ed. G. Storm (1880), pp. 93, 1336; *Acc. Exch.* K.R. 19/31 m. 4. *In j petra cordis de carnabo...pro uno soundynglyne inde faciendo*; *Das Seebuch*, ed. K. Koppman (1876), *passim*; *Sailing Directions... from a 15th century MS.*, ed. J. Gairdner, Hakluyt Society, N.S., Vol. LXXIX (1889), *passim*.

ignorance as to course and distance made good: in the same way, in centuries to come, vessels running to Java from the Cape frequently fetched up on the long western seabord of Australia; or again, ships approaching the entrance to the English Channel before they were aware, ran on the rocks of Scilly or the iron-bound coast of Cornwall.[1]

* * *

All this admittedly runs counter to the popular belief that it was not until the introduction of the magnetic compass that mariners dared to strike out boldly across the ocean. Thus, Dr Salzman remarks that, 'As far as possible the medieval sailor kept within sight of land and sailed from "view to view"'. Professor Parry speaks of 'the medieval navigator's horror of the open sea' and states that 'at the beginning of the fifteenth century the navigator had no means of finding his position once he lost sight of land, and consequently he took care as a rule not to lose sight of the land'. Admiral Harper goes further and declares that, 'Before the introduction of the mariner's compass in the fourteenth century, the only practical means, among western nations, of navigating ships was to keep within sight of the land'. These somewhat sweeping statements are hardly to be reconciled with the known facts of Scandinavian navigation.[2]

For centuries the navigation of the Norsemen was based in the main on oral tradition and experience. It was not, as has been said, until the thirteenth and fourteenth centuries that the first sailing directions begin to appear. But we must not, because of the relative scarcity of documentary evidence, underrate the value of that tradition and experience. *Si monumentum requieris, circumspice.* The vigorous, ocean-wide, centuries-long traffic of the North bears testimony to the amazing knowledge and skill of those navigators, little as we know of the secrets of their art. In which connexion it is well to remember that, even within living memory, fishermen and others possessed of but small book-learning frequently had recourse to well-tried, rule-of-thumb methods handed down to them from their forbears which find no place in the navigation manuals. And this holds good of the Iceland and Newfoundland fisheries, as well as of the coastwise traffic.[3]

The navigation of the Norsemen was in all probability, like that of Christopher Columbus's voyage of 1492–3, a skilful combination of dead

1 It was largely due to this ignorance of longitude that so many vessels were lost through the action of 'Rennell's Current'.

2 L. F. Salzmann, *English Trade in the Middle Ages* (1931), p. 242; J. H. Parry, *Europe and a Wider World* (1949), p. 19; J. E. T. Harper 'Navigation' in *Encyclopaedia Britannica* (1951).

3 A relic of old Norse days may be the belief formerly held by the fishermen of the Shetland Islands that there was a significant motion of the waters, known as the *mother-die*, which enabled them to find their way to land with nothing else to guide them. See *Saga Book of the Viking Society*, Vol. III, 8. Cf. Winther, pp. 338; Burwash, p. 12.

reckoning and latitude sailing. By the crude observation of celestial bodies they were able, not merely to 'distinguish the airts' (*deila ættir*) but also to determine their northing or southing with sufficient precision to keep on their proper track; and if they should be set too far to the northward or southward, through stress of weather or the action of surface currents, only by thus determining their position would they be able to recover it again. Though they could no more than guess at their longitude, they could at least be tolerably sure of their latitude. They could cling to the parallel of their destination, as it were, and follow it across the ocean till they reached their objective. This at least would seem to be the only possible explanation of their safe arrival at their journey's end, on so many occasions, after prolonged periods of drifting and *hafvilla*.

It cannot be too strongly emphasized that latitude sailing was the underlying principle of all ocean navigation down to the invention of the chronometer. Already in the Middle Ages it was practised by Arab pilots sailing to and fro across the Indian Ocean.[1] It was practised by Christopher Columbus on his voyage of 1492–3. It was practised by Vasco da Gama and his successors sailing to the East. The greatest of the Elizabethan navigators, John Davis, returning from his voyage to the North-West in 1587, sailed to the latitude of the Channel, and then shaped an easterly course until he arrived off his home port, Dartmouth. The Earl of Cumberland, bound for the Azores in 1589, first sailed down to lat. 39° N. (which was the latitude of his destination), and then steered west for the Azores. Many other cases might be quoted from this and the following century.[2]

Precisely how far back the Scandinavians may have practised latitude sailing it is of course impossible to say with certainty. But judging from the range and volume of the traffic which was constantly carried on between Norway and her colonies at the beginning of the eleventh century, there is no reason to suppose that the holding to an approximate latitude presented any more difficulty to the contemporaries of Leifr Eiríksson and Thorfinnr Karlsefni than it did in the era of *Sturlubók* and *Konungs Skuggsjá*. In particular it is difficult to escape the conclusion that the calculation of their northing or southing by comparison of the sun's height had long been familiar to the Norsemen.

1 Some idea of what might be achieved by very simple methods of nautical astronomy without the aid of quadrant, astrolabe or similar instrument can be gathered from the sailing directions set out in *Mohit*. See Maximilian Bittner, *Die topographischen Capitel des Indischen Seespiegel Mohit* (1897), *passim*; Joaquim Bensaude, *L'Astronomie nautique* (1912), p. 77; Reuter, p. 617; Parry, p. 17; *Imago Mundi*, 263.

2 *Hakluyt Society*, Ser. I, Vol. LVII, p. 59; Vol. LXXXVI, p. 171; Vol. XCIX, p. 190; *C.P.S.* (*Venice*), I, 890; Hakluyt's *Voyages* (1904), Vol. VII, p. 2; McElroy, p. 209; *Imago Mundi*, pp. 129, 216ff., 246, 265; *Mariner's Mirror*, Vol. IV (1914), p. 177; *ibid.*, Vol. XXIV (1938), pp. 403, 404, 408.

NOTES

THE *ANNE ROYAL* IN 1613

Mr Cannenburg has sent me some notes with regard to Visscher's print of the arrival of the Elector Palatine at Flushing in 1613. They provide some of the information for which I asked in my Note in February 1952.

The print from which the portrait of the *Prince Royal* was reproduced in the *M.M.* in 1920 bears the inscription 'Nicolaus Jo. Visscher Junior 1650', but is evidently a reissue of that published by his father. As evidence of this a pamphlet of 1618 describing the event speaks of 'the noble and triumphant fleet of which a representation is given *in this picture*'. It seems reasonable to assume that the print was also first published in 1618.

The vice-admiral's ship is not shown at all clearly, but there are on the left of the *Prince Royal*, more or less in the background, two English ships, a 4-master with a St George's cross at the main and a 3-master with the same flag at the fore.

Mr Cannenburg points out that the *Prince Royal* has the Royal Standard at the main and St George's cross (large) at the fore. If the print is correct, the *Anne Royal* had St George's cross at the main and not as one would have expected at the fore; this would allow the ship of the third in command to fly it at the fore, so that my criticism of Vroom for showing it thus in the *Repulse* may have been unjustified.

R. C. ANDERSON

H.M. BRIG *INVESTIGATOR*

This ship is mentioned in an article titled 'George Thomas, Master R.N.' (*M.M.*, April 1950, pp. 119–21). She was said to be a ship of 150 tons and was built at Plymouth in 1805.

A draught of a Survey Vessel, named *Investigator* of 120 tons, and built at Deptford in the year 1811, is in the collection of Admiralty draughts at the National Maritime Museum, Greenwich. This made me wonder if this was the *Investigator* used by G. Thomas. Enquiries have produced the following information, which persuades me that this was the ship.

'An *Investigator* was in the Royal Navy in 1810. She was purchased as the *Xenophon* in 1798 and renamed in 1801, being sold in November 1810. There is no record that Thomas ever served in her. The surveying vessel *Investigator* was launched at Deptford on 23 April 1811, and commissioned on 1 May 1811, by Joseph Frickey, Master R.N. She became a Thames Police vessel in 1837 and was finally broken up in 1857.

According to Steel's Navy List, George Thomas in 1810 was Master of the *Cornwallis* (38) on the East Indies Station until she was paid off on 8 February 1811. Until May 1814 he served in the *Charlotte*, hired cutter, and was appointed to command the surveying ship *Investigator* on 6 March 1816, in succession to Joseph Frickey. He continued in command until the ship was finally paid off on 14 December 1835.'

J. N. HAMPTON

THREE JACOBEAN WARSHIPS

Surely Dr Oscar Parkes is wrong when he suggests that Mathew Baker was a specialist in broken decks which are described as unnecessary. Both the *Prince* and the rebuilt *Ark* were Pett's work, and both had falls aft. Most, if not all great ships were so built before 1618. It was then that a Royal Commission ordered all to be built with flush decks fore and aft. Sir Henry Mainwaring, who should have known something about it, speaks of the great advantages of the new way of building, at the same time pointing out the advantages of the old construction to the merchantman when boarded by an enemy, who then certainly did find 'as much obstruction as possible in the

passage fore and aft'. In the days before it was fully realized that the man-of-war had changed from a floating castle to a floating battery the falls in the ship had remained; Mainwaring's evidence and the Royal Commission's Report have been given before in the *M.M.* so that it need not be here quoted in full.

The picture which Dr Parkes used to illustrate his article has in my humble opinion been very much restored and therefore should be used warily as evidence. I would guess that in the restoration a dropped port had been wiped out on the *Repulse's* quarter which would have been on the same level as the lower gun-room ports in the stern and those ports are a little lower than the broadside ports shewn, indicating that there was a fall. In the case of the *Lion* we cannot see the stern ports, but, as in the *Repulse*, there is a space to let on the broadside. Dr Parkes supposes the flag at the foremast is a vice-admiral's. I doubt this; but if it is, then the ship is intended for the *Anne Royal*. On p. 105 of the *Autobiography* we find that 'Doctor Pay that was chaplain to the Lord William Howard, Baron of Effingham and Vice-Admiral in the *Anne Royal* preached' on Easter Day at Chatham church before the fleet sailed. Phineas sailed with the Lord Admiral in the *Prince Royal* and is hardly likely to have made a mistake.

As to the decorations, Mr H. C. Arrowsmith since he wrote his note in the *M.M.* of August 1952 may have seen in *The Times* a report of the discovery of a gold coin of James I. The Keeper of the Guildhall Museum describes how on the reverse side 'surrounding a shield on which are included the arms of Scotland, Ireland, and France are the words: *Henricus Rosas Regna Jacob*', which he translates 'Henry [combined] the Roses James the Kingdoms', thus confirming Mr Arrowsmith's belief that James I found comfort in a Tudor connexion and makes it possible that the *Red Lion's* decoration may have owed something to Henry VIII's *Lion* as suggested by Dr Parkes.

Nevertheless I think we should also take note of the following from the testimony of Phineas: '. . . order was taken. . . for the dry docking of four of his Majesty's ships, videlicet, the *Ark Royal*, the *Victory*, the *Golden Lion* and the *Swiftsure*; the two latter being appointed to be docked at Deptford, commended to the charge of old Mathew Baker; the other two being ships royal, appointed to Woolwich and committed to my charge (by reason the *Victory* was given by the King to the Prince, whose servant I being, it was held fit to be most proper to me. . .)'. This all happened in 1606. Besides the *Ark Royal*, it would seem likely that Phineas had a hand in the rebuilding of the *Repulse*, as we read he was accused of appropriating her foretopmast. Now it seems reasonable to suppose that one who was Prince Henry's servant might well use his master's cypher on the ships he built. H.P. stood for Henry Prince, H.R. for Henry Royal who was (I suppose) the Prince Royal. On 6 November 1612 Prince Henry died, his burial being in the Abbey a month later, and in the following January Phineas was ordered to prepare the honeymoon fleet for the Lady Elizabeth. So soon after the sad event, it seems improbable that Henry's cyphers and badges would have been painted out. All this sounds very well; but it does not explain the H.R. in the *Lion's* decorations (if *Lion* she be), for she was of Mathew Baker's building. If the bills for repainting the fleet are as detailed as that of the *Prince Royal*, printed as an appendix to the *Autobiography*, the matter could be settled.

But the ways of marine painters are unpredictable, and likely as not, the painter's lady love was Hermeintje Rosenkrans or some such name, and he splattered her initials all over his canvas to give her pleasure, and to give us poor archæologists a headache. GREGORY ROBINSON

SHIPBUILDING IN IRELAND

Phineas Pett, in his *Autobiography*, says that about the middle of January 1612 Prince Henry commanded all the Master Shipwrights to attend him about the building of ships in Ireland. William Burrell proposed the building there of a ship of 600 tons in place of the old *Bonaventure*, and it was arranged that Phineas should go over and see that the work was well done: I do not think there is any record of his going to Ireland at that time. He tells us that in 1624, his son John embarked in the *Antelope* for Ireland and that his fourth son Joseph died there in the

following year when he would have been only 16 years old. Neither of the references to his sons can have connexion with the building of a ship in 1612, but it is possible that young Joseph may have been apprenticed to one of his numerous shipwright uncles. We may be quite certain that if there was any shipbuilding in Ireland, one of the Pett family would have been there.

On p. 202 of Oppenheim's *Administration* there is a list of ships belonging to James I. Of those built about 1612 I have a marginal note that the *Merehoner* and *Defiance* were built at Woolwich and the *Dreadnought* at Deptford. The *Vanguard* was of 650 tons. I have no note of where she was built in 1615. The *Convertine*, originally Raleigh's *Destiny*, was built at Woolwich in 1616 (*Lists of Men-of-War*, R.C.A.). In the transcription which Commander Merriman has given us of a Sergison paper there is mention of a project to build in Ireland in Charles II's reign (*M.M.* November 1952); the lists give no sign of any ship built there, and it may be this proposal in 1612 also came to nought. Perhaps Dr de Courcy Ireland with his knowledge of the Irish papers will be able to enlighten us. GROGREB

NIPPERS

Suspecting as I do that hiding behind the initials H.T.A.B., there lurks one who hitherto has had the reputation of being a kindly man, I am the more shocked that such a one should set out to murder our poor little nautical nipper, to besmirch the child's memory with vile names: cutpurse, rogue, cheat, thief and the rest. I thought better of him.

Seriously, while I think it is possible he has the right answer, his workings do not seem to be very satisfactory. After all, books about seamanship have always been a second best guide to the practise of the craft, but so far as the days of oak and hemp are concerned, the books are all we have, and we have to do the best we can with them. This I do not think is being done when the testimony of a book written fifty-five years after the introduction of chain cables is preferred to books written by men who knew only the hemp cable and the hemp messenger. Admiral Smyth published his *Sailor's Word Book* in 1867. Captain Liardet, R.N., published his *Professional Recollections* in 1849 and at that time evidently many did not believe the chain cable was in all cases satisfactory; so we must not conclude that Smyth knew only of hemp cables from the books, though when he wrote, chain was recognized as established and when he thought of cables they were chain cables, the other sort being a thing of the past. I wonder how often he actually saw the hemp being nipped. In his day I take it the nipper had become 'a heavy metal shackle, fitted with a hinge at one end and a slip at the other no more than two of them being in use at the same time', the handling of which would be too much for small boys, as H.T.A.B. wisely says.

Falconer and Burney make it quite clear that there were both nipper men and ship's boys engaged in the operation. To this H.T.A.B. adds: 'But if this was the practice in early days it must have been found unsatisfactory for all the later authorities follow Admiral Smyth', in which of course the authorities are entirely orthodox. But I am prepared to risk having hemp round my neck and to follow the plain captain and the mariner-poet, because I really think in this case they knew more than the admiral did about it.

I do not suppose it would be possible to re-enact the whole process of getting an anchor with a 24 in. hempen cable and a 16 in. hempen messenger; so that by practical experiment, it is impossible to decide whether the nippers could be held by boys. But I wonder whether one with a knowledge of dynamics (if that is the right word) could not tell us how much force would be needed when once the nipper men had adjusted the nippers and the boys had given them a twist? It was I suppose the interlocking of the strands of the cable and messenger that really did the business, the nipper maintaining the position. It may be irrelevant, but I am thinking of the power of the twisted rope in the Spanish windlass.

Besides Falconer and Burney, D'Arcy Lever, whose first edition was about 1812, says boys were employed in holding on to the ends, and he draws two diagrams to show how the cable and messenger were united, one in light weather and the other when there was a strain on the cable. From the drawing it would seem Mainwaring's nipper differed in that he says that it had 'a little truck at one end (or some have only a wale-knot)'. Under *Viall*: 'for more help we take a hawser

and open up one strand, and so put into it nippers (some seven or eight, a fathom distant from each other) and with these nippers we bind fast the hawser to the cable.' Captain Boteler says the same in other words, having cribbed it without acknowledgement.

There is plain evidence that there were people called nipper *men*; and if there were, why should not there have been nipper *boys*? By a natural process (I suppose) *boys* was dropped, and we have the nippers attending on the nipper men. As for saying there was no need for these lads to hurry, most people will remember the reason given by the boy who ran away from his ship, 'because', he said 'they keeps on making yer keep on'.

It seems to me natural that when the chain cable came, and later steam-power was used, the inexperienced were best kept clear of the cable and evidently by the early 1880's the boy was entirely forgotten as having ever taken any part in the getting of the anchor, under his own name or under an alias. But surely this does not rule out the possibility that the name had by that time come to a more common meaning and was applied to boys generally; it may have passed out of usage at sea, having previously gone ashore.

Heaven forbid that I should have words with that verbose old lady, the *Oxford English Dictionary*, but if things got nipt, there must have been a nipper.

> When blood is nipp'd, and ways be foul,
> Then nightly sings the staring owl.
> Two-who;
> To-whit, To-who, a merry note,
> While greasy Joan doth keel the pot.

Shakespeare's nipper was Winter, and it was natural enough that folk should take to saying that frosty weather is nippy. Surely the word *pinched* had a respectable meaning before it became disreputable, as obviously *nipt* had. The word had many meanings, and I doubt not that it will be found too elusive ever to be pinned down to a date; but as we have seen, there were nipper men who clapped on the nippers, and I really cannot see why there should be any doubt that in the eighteenth century the lads that helped them should have been looked upon as nipper boys and called *nippers* for short.

It will have been noticed that members of parliament, when a subject is being debated in which they are financially interested, always declare that interest before speaking. Here then, rather belatedly, declaration is made that not only have I spun this yarn over and over again, that the nipper, poor misguided little fool, started life at sea, but I have gone further, and have even drawn pictures of him for lucre.

To me, to whom it has ever been a shattering thought that I might be wrong, it is a thought more painful when I consider the dire consequences which would follow, if it should turn out that this poor misguided lad is definitely done to death. For remember, we possess H.T.A.B.'s signed statement in the pages of the *M.M.*, where, at greater length and more grammatically, he admits he done it.

GROGREB

REAR-ADMIRAL ROBERT SANSUM

In 1665 Robert Sansum was Rear-Admiral of Prince Rupert's squadron, and he was killed in the battle against the Dutch on 3 June (*Calendar of State Papers, Domestic*, 1664–5, p. 406). The Accounts of the Chamberlains of the Corporation of Ipswich for 1664–5 contain two items of expenditure in connexion with his burial:

pd. for 38 lb. of Gunpowder in quarters and to the Gunner 33 lb. for the Buriall of Rear Admiral Sansom	£4.	2.	0.
To Goody Joy for helping at Captinge Sanson ffewnerall		2.	0.

The register of burials of St Clement, Ipswich records:

> Captayne Robert Sansom Rere Admirall of ye White Squadron ws. buried the 24th of June.

There is no other record of him in the church or churchyard.

The Chamberlains' Accounts for 1665–6 also contain an item 'To Peter Forndon for a flag taken from the Dutch, £3. 10. 0.' A. G. E. JONES

THE THREE L'S

The traditional three L's, in my time, had spread well beyond English countries; before the Old War (1914–18) I heard it quoted more than once in French naval teaching. The first time I happened to find the 'Latitude' addition was in an English book issued three or four years ago. I wondered why 'Longitude' had been left in the cold, and felt no hesitation in ascribing the fourth 'L' to what some of our irreverent fellow members call 'British museum seamanship'.

G. R.

THE IDENTITY OF 'JACK NASTYFACE'

I dare say that many people besides myself have been curious about the identity of the author of *Nautical Economy or Forecastle Recollections of Events during the Last War*. What sort of a man was 'Jack Nastyface'? Was he what we should now call a 'bird'; a man who was always at war with authority, and who in consequence suffered personally from the barbarous discipline that he protests against? Or was he what he represents himself to have been; a reasonably good and willing hand who took a real pride in the service, or rather in the service as he knew it should have been? Was his loathing and contempt for nearly all officers the common attitude of the man on the lower-deck, or is the whole book coloured by the memory of one or two particularly bad officers?

That the men had good ground for complaint is beyond all question. Discipline was harsh in all ships, power was abused in many, and there were not a few officers who were a real disgrace to their cloth; and yet in no other memoir that has come to us from a man who actually served on the lower-deck have I found anything like the same bitterness towards officers as a class. It will also be remembered that in 1797, though the men demanded the removal of a good many individuals, the attitude towards the officers generally was remarkably friendly. The treatment of Lieutenant Nieven, of the *Espion*, is typical.[1] This officer had been instrumental to the flogging of one of the delegates only a few days earlier, and had expressed surprise that the man did not attempt to take his revenge. 'You did (get me flogged), Sir,' was the reply, 'but I deserved it. You are a gentleman, and a good officer. You never punished men but when they were in fault, and you did it as an officer ought to do.'

After a careful study of 'Jack Nastyface's' book, and of the history of the ship he served in, I have come to the conclusion that if he had not come under the command of one particular captain, he would either have not written at all or would have written a book of a very different character. I notice that, although he says that he detested the navy from his first day, he returned from his leave in 1806, after he had had over seven months experience of it. On the other hand, although there is reason to believe that the *Revenge*[2] was a reasonably happy ship during the latter part of his time in her, he gives no hint of it. This suggests that between 1806 and 1811 something had happened to warp his outlook permanently. It was not necessarily the shocking brutality, about which he writes with such just indignation. Punishment on board the *Revenge* was as severe during the time when she was commanded by Alexander Kerr as at any other, but Kerr is 'a noble fellow', one of the very few officers for whom 'Nastyface' has a good word. Either 'Jack Nastyface' fell foul of one of his captains personally, or he found himself under the command of one of those officers for whom no ship's company could have the slightest respect.

1 *Peter Cullen's Journal*. N.R.S., Vol. xci, p. 84.

2 According to Private Wheeler (Letters 19 and 20) the *Revenge* was practically the prototype of the *Saucy Mantelpiece*. It should be said, however, that Wheeler is not quite correct when he says that there was no flogging during the six weeks that the 52nd Regiment was on board; actually nine men were punished at the gangway during this period.

There is very little doubt that the Hon. Charles Paget, who was in command from August 1808 to October 1810, was a captain of this sort; but before we can judge whether 'Nastyface' had other reasons for his marked prejudice against officers, it is necessary to identify our man and try to learn a little more about him than he chooses to tell for himself.

'Jack Nastyface' says that he volunteered at the rendezvous on Tower Hill on 9 May 1805; that he was sent down to a receiving ship at the Nore next day, and that shortly afterwards he was drafted to a ship-of-the-line which sailed a few days later to join the Channel Fleet. It is perfectly clear from his story that the ship in question was the *Revenge*, a new '74' that had been recommissioned at Chatham in April and had gone down to Long Reach to complete for sea on 15 May; and it could be assumed with some certainty that 'Nastyface' was one of the sixty landmen who were sent on board from the *Zealand* on the 17th. The problem of identifying which of the sixty is our man is considerably simplified by the fact that he was a volunteer, and so his date of entry on the books of both the *Revenge* and the *Zealand* should be that on which he entered the rendezvous at Tower Hill. Only four of the landmen who sailed in the *Revenge* on 18 June are shown as entered on 9 May, but in order to make certain of including our man I noted the names of all volunteers under the age of 25, who had been entered between 9 May and the date of sailing.

The narrative of the next six years, though sketchy and inaccurate in places, is a fairly complete record of the *Revenge's* activities up to the end of March 1811, when she returned to Spithead after taking the 52nd Regiment to Lisbon. The ship went to harbour to refit on 30 March, and when she sailed again, on 14 June, it was to join the fleet at Cadiz. She did not return to England until November 1812, and as 'Nastyface' says nothing whatever about the events of this year and a half, it may be inferred that he left the ship before she went out to Cadiz. But it is possible to question this; for although he gives a very strong impression that he left the navy immediately after the return to Portsmouth in 1811, he actually says that it was towards the latter part of the year. This could be a misprint for month, but he may be thinking of the return to Portsmouth at the end of 1812. The fact that Sir John Gore was then reappointed to the *Revenge* might furnish a special reason for a sudden departure; though, as a matter of fact, I do not think that Sir John was a very unpopular captain, in spite of his undoubted severity. It is, moreover, rather a curious thing that in another place 'Nastyface' should say that in a little under *seven* years it had taken just over 2100 men to keep up the ship's complement of 640. In April 1811, only *six* years after commissioning, the numbers in the list of seamen had not risen above 1021, and even with marines and boys the total was only just over 1400. At the end of 1812, however, although the numbers on these lists are still a long way short of 2000, the list of supernumeraries for victuals only does run from 2023 to 2128. Of course the men in this list have no bearing at all on the point that 'Nastyface' is trying to make, but it is odd that he should mention that particular number.

Nevertheless, I feel practically certain that 'Nastyface' did desert in 1811. I find that of the thirty-eight landmen whose names I had noted, eighteen had disappeared from the muster list before the beginning of 1811 and twelve were still on board well into 1813. Of the eight to be accounted for: one died in February 1811, one in November 1811 and one in March 1812, one was invalided to Haslar Hospital in December 1812 and one discharged to the *San Juan* at about the same time. The other three deserted; one on 30 April 1811, one on 23 May 1811 and one in December 1812, and the dates of entry of these three were 9, 13 and 23 May respectively. It can therefore be said with some confidence that 'Jack Nastyface' is a man named William Robinson, who entered on 9 May 1805 and deserted at Portsmouth on 30 April 1811.

My conviction that William Robinson is our man is strengthened by the fact that he remained a landman until the 18 January 1811, and that he then became purser's steward. One of 'Nastyface's' complaints about Captain Paget is that the members of the captain's band were rated seamen when better men than they were denied the rate. Moreover, although Robinson did not become purser's steward until 1811, he may well have been doing some of the work some months earlier, which would account for 'Nastyface' being in the habit of going ashore in Flushing two or three times a week. Another point which may strengthen the identification is that Robinson was a native of Farnham. When 'Nastyface' went up to London he proceeded by the Fareham-

Alton road instead of by the slightly shorter road over Hindhead. This may have been only because he was landed on the Gosport side of the harbour, but he may have chosen his road because he wished to look up friends or relations at Farnham.

If 'Nastyface' is Robinson, it would appear that he did his duty reasonably well, or was, at any rate, clever enough to give that impression; for William Robinson does not figure in the long list of men who suffered at the gangway. Whether he was as good a seaman as he would have us believe, is another matter. I think that all his contemporaries who were still on board when he deserted were then at least ordinary seamen; by the end of 1812, two of the survivors were A.B.'s and one a quarter gunner. C. G. P. J.

FOOT-NOTES TO *PEL. VERJUICE*

There has never been any mystery about the identity of the author of *The Autobiography of Pel. Verjuice*, but, so far as I know, no serious attempt has ever been made to annotate that magnificent fragment. *The Dictionary of National Biography* says only that Charles Reece Pemberton was 'seized by a press-gang and sent to sea (and that) he served for seven years, seeing some active service off Cadiz, Gibraltar and Madeira'. The editor of the Scholartis Press edition (1929) has nothing to say about these years, and even prints the dates of his service incorrectly. These few additional notes may therefore be of interest to admirers of the book.

The Captain Mends who was Regulating Captain at Liverpool when Pemberton volunteered (for he did volunteer, although he was lured into the rendezvous before he realized whither he was being led) was the very distinguished officer who died as Commodore on the West Coast of Africa in 1823 (see *D.N.B.*). Sir Robert's career is remarkable for the number of serious wounds that he sustained. As a midshipman he lost his right arm at the siege of York Town, and in the following year he was again wounded at the Battle of the Saints. In 1795, when a lieutenant on board the *Colossus*, he was nearly killed by the bursting of a gun during Bridport's action. He was wounded again, in 1797, when in command of the *Diligence* sloop; and yet again, in 1809, when captain of the *Arethusa*.

The ship in which *Pel. Verjuice* served was, of course, the *Alceste* (36), which (as the *Minerve*) had been captured by Sir Samuel Hood's squadron in the previous year. (See James, IV, p. 175. Hood's dispatch is printed in the *Naval Chronicle*, Vol. XVI. 'Jack Nastyface' gives a lower-deck account of the action.) On the *Alceste's* books, *Pel. Verjuice* is entered as T. C. Reece Pemberton. He served as a landman until May 1810, then as clerk ('I still regard the four last years of my life at sea as the happiest of my existence'). His birthplace is noted as Pontypool; his date of entry as 4 June 1807, and his age at entry as 20. The date should be that on which he volunteered at Liverpool (see remarks on 'Jack Nastyface', p. 137 supra). The age is, I think, a convention: I have noticed that no landmen, except those destined for the quarterdeck, ever seem to be under 20.

The captain of the *Alceste* was Murray Maxwell. He had been one of Sir Samuel Hood's midshipmen from 1790 to 1794, and in 1802 Hood had made him his acting captain in the *Centaur*. He died in 1831, just as he was about to take up his appointment as Governor of Prince Edward Island (see *D.N.B.*).

Of the services mentioned by *Pel. Verjuice*: The expedition to Madeira sailed on 4 December 1807, and the island capitulated on the 24th. Sir Samuel Hood was in command of the squadron (see James, IV, p. 275). The action with Spanish gunboats, when two were sunk and seven of the convoy captured, was on 4 April 1808 (see James, IV, p. 226). The surrender of Admiral Rosilly's squadron to the Spanish insurgents at Cadiz took place on 14 June. The *Alceste* went into the harbour on the 12th and remained until the 17th. 'Jack Nastyface' has something to say about the rising. His captain, Sir John Gore, carried out a good deal of the negotiation with the Spanish authorities, and their commissioners were sent to England in the *Revenge*.

Pel. Verjuice's autobiography ends (except for a few fragments) when his ship went up the Straits in 1809. For an account of the sort of work she was employed on in the Adriatic, see Robert Wilson's Journal (N.R.S., Vol. XCI). Wilson was actually on board about six weeks while waiting to join the *Alacrity*. For operations on the Riviera, see James, V, p. 119, and for the

action with French frigates, on 29 November 1810, James, v, p. 247. It was in this action that Pemberton's friend Midshipman Charles Nourse was killed.

Pemberton followed Captain Maxwell to the *Daedalus* (38) in October 1812. He appears on the books of this ship as Thomas Charles Pemberton. I think that it is beyond all doubt that it was the wrecking of the *Daedalus*, on the coast of Ceylon, in July 1813, that brought his service in the navy to an end. It is not likely that he would have cared to serve with any other captain. If he had been able to remain with Maxwell, he would have rejoined his 'old, glorious, darling ship, the *Alceste*'; and would have been again wrecked when she was lost in the Straits of Gaspar in 1817.

One other small point: I believe that nothing certain is known of Pemberton's wanderings between the time he left the navy and 1828. His remark about suspecting that he had been shipmates with 'the glorious Tom Cringle (who was he?)' suggests that he arrived in the West Indies before 1822; the term shipmate would, of course, apply to a fellow passenger in any ship.

C. G. P. J.

EARLY MENTION OF CRICKET

Teonge's Diary mentions cricket on 6 May 1676 among the amusements of the English merchants at Aleppo.

R. C. A.

THE FRAMING OF MODELS

In a recent talk I mentioned the fact that the normal framing of what are usually called 'Navy Board' models could not be accepted as a true representation of the framing of the actual ships. It may be as well to go into the matter rather more thoroughly.

The normal model has its frame-timbers in five sections, a floor, two pieces overlapping the ends of the floor and extending to a little above the lower wales, and two more overlapping these and reaching to the rails. All are equally sided, and since the space between the floors is exactly equal to their siding, the result is that in two places, at the bilge and at the lower wales, there are continuous strips of timber where the frame-pieces fit close against one another.

Now the frames of a real ship consisted of eleven pieces: floors, two first futtocks, two second futtocks, two third futtocks, two fourth futtocks and two top-timbers. In the smaller classes there were no fourth futtocks, but that still leaves nine pieces as against five in a model. The second futtocks butted against the floors at one end and against the fourth futtocks at the other; in the same way the third futtocks butted against the first futtocks and the top-timbers. In a model nothing butts against anything else.

There is another difference. The timbers of a ship were not all equally sided, but became smaller as they went further from the keel. The following figures for a 2nd-Rate are taken from a MS. of 1676; those given by Battine some ten years later are very nearly the same. The floors were 14 in. and the same distance apart; first futtocks $13\frac{3}{4}$ in.; second futtocks $13\frac{1}{4}$ in. at the foot and 13 in. at the head; third futtocks 13 in. to $12\frac{3}{4}$ in.; fourth $12\frac{3}{4}$ in. to $12\frac{1}{2}$ in.; top-timbers $12\frac{1}{2}$ in. to 8 in. It will be seen that even where the first futtocks overlapped the floors they were not *quite* a tight fit and that there was nothing like a continuous belt of timber anywhere else.

It may be that models have their floors spaced along the keel in accordance with the 'room and space' of the ships they represent, but that is about as far as they go in the way of accuracy as regards their framing.

R. C. ANDERSON

A NOTE ON THE *BEITIÁSS*

In *The Mariner's Mirror*, Vol. 1 (1911), p. 247, there is a note by R. Morton Nance concerning a spar known as the 'vargord', or 'fargood', which, down to about the middle of the last century, was still used in some of the West Cornish fishing-vessels as a bowline. Mention is made of the 'fargood' in Penhallow's *History of the Wars of New England* (ed. 1859), pp. 53, 54: 'But having

no fargood, and their boat a dull sailer, ours gained on them so much.'. . .'The enemy making too near the wind (for want of a fargood) came to stays several times.' This was in the early eighteenth century.

The 'fargood' may, perhaps, be identified with the *beitiáss*, or tacking-boom, of the Norsemen. Frequent mention is made in the thirteenth-century Icelandic sagas of the use of the *beitiáss* for sailing on a wind. This was certainly no innovation. The art of sailing on a beam wind, and even of tacking, can be traced at least as far back as the Viking era. Conclusive evidence of this has recently come to light as the result of a more thorough examination of the ninth-century Gokstad craft. Nailed to the ship's sides abreast of the mast are two blocks of pinewood. It was for long a matter of conjecture what purpose these blocks served. It is now clearly established that they must have acted as a support for the *beitiáss*. The *beitiáss* was used to brace the yard well forward to enable the ship to sail closer to the wind, one end of the spar being inserted in a socket in one of these wooden blocks and the other secured to the weather leech of the square-sail. With the help of the *beitiáss* the large square-sail could be close-hauled, enabling the vessel to sail with a beam wind, and even to tack. (The maximum close-hauling which could be achieved by this means was called *at aka segli at endilöngu skipi*.) A *beitiáss* was fitted in the *Hugin* in 1949 and gave very satisfactory results. Captain Sølver who was in charge of these tests states that with the sail close-hauled the ship sailed within $5\frac{1}{2}$ to 6 points of the wind in a moderate breeze, making very little leeway; and that the side-rudder worked very satisfactorily on both tacks. In the Kattegat and the North Sea, during the voyage to England, the *Hugin* displayed fine sailing qualities. 'On the way across the Kattegat, the *Hugin* redeemed the promises she had already given on the Isefjord and proved to be an admirable sailer. Even when close-hauled, her speed was considerable and the leeway surprisingly little' (Jørgen Røjel, *The 1949-Cruise of the Viking Ship 'Hugin'*, p. 24). Captain Sølver further states that the *Hugin* went about readily with a good working breeze in smooth water; but that in a seaway he had the oars on the lee side manned to bring her about, otherwise it would have been necessary to wear ship. (It is to be noted that when the *Viking* crossed the Atlantic Ocean in 1893 a triangular foresail was used, and no *beitiáss* was fitted: for at that time the significance of the wooden blocks abreast of the mast was not understood.) In conclusion it is to be emphasized that, though the craft in which the Norsemen made their daring voyages could sail close-hauled, it is certain that they did so only over comparatively limited distances, e.g. for making an Iceland haven. The more usual procedure was for the crew to anchor and to wait for a fair wind. Nor was the *beitiáss* ever used in ocean navigation. When the wind hauled ahead and blew a dead muzzler, the crew simply allowed the vessel to drift. Thus in the *Gudmundar saga* (trans. G. Turville-Petre): 'The wind took them north of Gnupar off Melrakkasletta, but then came a head-wind; they let the ship drift and thus they were tossed about by it for a long time and driven westward to Hornstrandir.'. . .'Then again they met an east wind and drifted before it once more, and their ship was driven west out to sea.'

G. J. M.

THE MAST AND SAIL IN THE NORTH

The early stages of the development of mast and sail in the North are fairly well attested by documentary and archaeological evidence. The Veneti, a people of the Armorican peninsula, possessed, as we know from Caesar's *De bello Gallico*, strongly built wooden vessels with their leathern sails. Meanwhile across the Channel, even at this early date, the hide-covered curach had arrived at a remarkably high standard of performance and efficiency. It is clear, from Caesar's *De bello civile*, that the Celtic curach was a well-constructed craft of light timbers and osiers with a covering of hides; an important point to be borne in mind is that these vessels were fitted with keels, *carinae*. Towards the end of the Imperial period the sea-going curach is mentioned in the poems of Festus Avienus. It was used for the carriage of merchandize by the Oestrymnides, a race living in the Cornish peninsula and adjacent parts. About a century and a half later the curach appears to have been used in the British emigration to Armorica. By this stage the large sea-going sailing curach constructed by the *Scotti*, or Irish, was frequently engaged in peaceful

traffic to and from Dal Riada, the Irish colony in south-western Scotland, as well as in recurrent voyages across the Irish Sea. In the well-known description of the construction of St Brendan's curach in the *Navigatio Brendani* mention is made of the mast and sail, also of some device for steering and of the vessel's keel. The keel of the curach is also mentioned in the *Vita S. Columbae* and the *Immram curaig Maile Dúin*. Already before the end of the sixth century the curach was capable of a long ocean voyage and at some later period may have reached the shores of Iceland. The Irish sea-going curach was essentially a sailing vessel. Though oars were carried and frequently used it is clear that the sail was the principal means of propulsion; nor are crews ever recorded to have rowed against the wind.

One of the earliest references to the mast and sail among the Germanic peoples is that made by the poet Claudian, who in the fourth century tells of Saxon sails hovering off the coasts of Britain. In the fifth century Sidonius Apollinaris refers to Saxon war-craft with their 'sails' and 'firm-holding anchors' (*priusquam de continenti in patriam vela laxantes hostico mordaces anchoras vado vellant*). Some time later the British Gildas refers to the ships of the Saxons 'with their sails wafted by the wind'.

The development of mast and sail in the high North occurred much later than in the waters around Britain. The sea-going sailing ship of the Norsemen was the outcome of a gradual process of development, the successive stages of which can be clearly established by means of the Nydam, Kvalsund, Oseberg, Gokstad, and other vessels, which from time to time have been disinterred in different parts of Scandinavia. The oldest of these craft, the Nydam boat, which dates from the early fourth century, is generally regarded as the ancestor of 'those miracles of naval architecture, the longships of the Viking age', which reached their full development in the famous Gokstad ship. The Nydam boat is not fitted with a true keel, but with a broad plank projecting only very slightly below the bottom of the vessel. There is no sign of a mast. The Nydam craft is a rowing-boat pure and simple. In the Kvalsund ship (*c.* seventh century) the same light and flexible system of construction is followed as in the case of the Nydam boat. There is, however, an important advance in respect to both the hull and the side-rudder. Something much nearer to a proper keel is incorporated in the Kvalsund craft, and its beam is greater in proportion to its length, thus giving the ship greater stability. The Kvalsund vessel marks the half-way stage between the Nydam boat and the fully developed longship of the Viking era. It now became possible for the hull to support a mast and sail. It ushered in the new age of Scandinavian maritime enterprise. It was in all probability in vessels of the Kvalsund type that the first voyages were made to the Orkneys and Shetlands in about the year 700. The final stage of this development was reached somewhere between the time of the Kvalsund and Gokstad ships: that is, at some time in the eighth or ninth century. Unlike its forerunners the Gokstad ship was fitted with a proper keel. It now became possible for the ship to face gales and heavy seas: to sail with a beam wind or even nearer the wind. The Gokstad is beyond comparison the finest and best preserved of all the Viking craft that have come down to us through the ages. The hull, mast, and quarter-rudder are in perfect balance and harmony one with the other; and in 1893 an exact replica of this vessel, the *Viking*, successfully sailed between Norway and Newfoundland. G. J. M.

SHIP MODELS IN CHURCHES

Mr Henning Henningsen's informative article about ship models in Danish churches (*M.M.* November 1952) reminds me of the account in Joinville's chronicle of Louis IX's crusade in 1248, of 'une nef d'argent de cinc mars', made on the instructions of Louis's queen after the return of the crusaders to France. Joinville describes dramatically how near the king's ship had come to shipwreck off Cyprus, and how at his suggestion the queen vowed to go on a pilgrimage to the shrine of S. Nicholas de Warangeville, and vowed on behalf of the king who was asleep and had given orders that he was not to be disturbed, this silver nef, as a thank offering if the threatened shipwreck should be averted. According to Joinville, the nef was made in Paris, 'et estoit en la nef, le roy, la royne et les trois enfans, touz d'argent; le marinier, le mat, le

gouvernail et les cordes touz d'argent et le voile tout d'argent'. He says the model was sent for him toinstal in the church of S. Nicholas, which he duly did, and that he saw it still there many years later.

I have often wondered and meant to enquire, if there was any record of what eventually happened to that model, and I take this opportunity to do so.

I would also point out that in *Neptunia*, journal of the Association des Amis des Musées de la Marine, nos. 26 and 27, 1952, there have appeared excellent illustrated articles about ex-voto offerings, chiefly pictures rather than models, in chapels at, respectively, La Rochelle and Antibes.

J. DE C. I.

CURIOSITIES IN NAUTICAL TERMS

The last two wars brought the Navy and the Merchant Service into closer contact than they were at any other time in living memory, for it can be said in the case of many officers and men under the Red Ensign that their services under the White Ensign were about equal. From these experiences there arise some points of interest in which old seafaring customs, usages and nautical terms differ without any apparent reasons.

In the Navy a *shackle* of cable used to be 12½ fathoms in length as against 15 fathoms in merchant ships, but since 1949 they have both been standardized at 15 fathoms. In the Navy the pin of a joining shackle is kept secure by means of a pellet of lead while in merchant ships a spigot of oak is used. When, however, a merchant ship drops anchor on a rocky bottom, these pins are secured with a soft iron spigot clenched at both ends. This was a common practice in vessels loading guano at the off-shore islands of South America.

Sea traditions die hard as is proved by the term *cable* itself. Despite the fact that anchor cable has been superseded by chain with studded links for more than a hundred years, the Navy continues to adhere to the old word, while in merchant ships seamen call it by its proper name, *chain*. So far as is known, the *bitter-end* of a ship's cable or chain is secured to the keelson at the bottom of the chain locker by a slip hook. In windjammers it is secured by means of a stout rope lashing after the end has been passed through a shackle in the keelson. The term *bitter-end* of course is applied in many ways and daily use ashore and among folk far inland, but its origin is definitely traced to the sea.

The terms *scuttle* and *porthole* for the round windows in a ship's side are confusing because a *scuttle* in a merchant ship is a hatchway covering fitted with a sliding top, and therefore has no connexion with the round hole in the side of a warship.

Dandyfunk is a concoction of ship's biscuits (*pantiles*) first steeped in water and put in a baking tin, and then smeared with salt meat fat and baked in the oven. *Cracker-hash* is a similar mixture sweetened with unrefined treacle, better known as *black-jack* which is supplied to all *lime-juicers* as part of the crew stores. Of course, a *lime-juicer* is the universal term among all English-speaking people for an English ship or seaman, so named because all British vessels are supplied with lime-juice which is served out daily, according to an Act of Parliament, in place of fresh meat and vegetables. Prior to this rule many seamen died through scurvy.

Dogsbody is a term of derision among seamen for an inferior or underling such as a first voyager, who in his ignorance gets in everybody's way and has all the dirty jobs below and aloft. The word is also applied to a dish of pease-pudding often served to the crew instead of leaf or root vegetables.

A story circulated throughout both Services with regard to a young girl who was missing from her work in a meat-canning factory; some time afterwards a human finger nail was found in a tin of corned beef issued to some ship or other. The gruesome story gave rise to further enquiries of the missing girl, and her name was used to describe canned meat. But why *Fanny Adams* in the Royal Navy, and *Harriet Lane* in the Merchant Service, for the same individual?

A *ship in mourning*; I remember the respect displayed on the death of a shipowner by his vessels having a mauve band painted right round the hull just below the top-gallant rail.

The *Matthew Walker knot* has a mysterious name. It is true that it was common enough, for such a knot was made in the standing end of all the lanyards of a ship's shrouds or standard rigging.

Uniformity and precision being the order of the day in a sea-going ship and among all seamen worth their salt, the Matthew Walker knot always occupied the hole on the left of the three in the upper deadeyes looking from inboard. Hence the old-fashioned sailor's riddle: aft on the port side, for'ard on the starboard, all round the ship? The answer was, the Matthew Walker knot. The origin of the name has frequently been asked in the Press (including *The Mariner's Mirror*), but it still remains a complete mystery.

A wimwam for a goose's bridle is another of those nautical terms common to most seafarers, as to whose origin or indeed to whose meaning there is no answer. It is applied by a sailor to some rope or other that has no specific name.

Why is the ship's cook referred to as *the doctor*? In sail he was exempt from any form of rope hauling, but he would be found taking his share in hauling aft the foresail sheet after the vessel had been put about on to the other tack. It was the regular custom whose origin is not clear. In the event of the cook being absent from this particular place of duty, there was an abundance of ribald language directed to the open galley door, 'Where's the —— cook?'

W. S. DAVENPORT

SPANISH NAUTICAL DICTIONARIES

As a further addition to the data presented in *M.M.* January 1951, p. 68, one may note the existence of a polyglot nautical dictionary by John D. Jmhorst entitled *Taschen-Wörterbuch der allgemeinsten Schiffsausdrücke in deutschengl.-fransösisch-spansich so vie engl.-deutsch, frans.-deutsch und span.-deutsch*. . . (mit mehreren Original-Zeichnungen und deren Erklärungen versehen), Bremerhaven und Lehe, 1844. The frontispiece, 'Erklärung der Flaggen' portrays the flags of sixteen states, i.e. Hamburg, Lübeck, Bremen, Prussia, Austria, Sweden, Oldenburg, Holland, Mecklenburg, Denmark, England, France, Spain, the United States and Russia. It is dedicated to 'Sr. Magnificenz der Freien und Hansestadt Bremen Bürgermeister, Dr Johann Smidt, hochachtungsvoll gewidmet von dem Verfasser.' The volume contains 246 pages, eight unnumbered pages which explain and are the key to the six plates, as well as a page of errata.

HENSLEY C. WOODBRIDGE

'SLAVONIC PIRATES' IN THE ADRIATIC

In his article on Maritime Law (*M.M.* November 1952), Mr Senior wrote of 'Slavonic pirates' in the Adriatic in the Middle Ages. From the context, I think it is clear that Mr Senior did not really mean to make out a case for the Venetians as being more moral than the Slav seamen. It is I think worth recalling that the seamen and merchants of Ragusa, now Dubrovnik, and their dependents, were the only South Slavs able to retain their independence during the period of the great Turkish invasion of the Balkans. Ragusa, the refuge of Slavonic patriots, sheltered also generations of fine poets and artists, and testimony is borne for the maritime prowess of the South Slav Venice by the fact that the English language has adopted a corruption of its name in the word 'argosy'. A little book by Miroslav Krleža, published in Paris recently under the title *Le Thème Adriatique*, gives a partizan but none the less informative account of Slavonic maritime achievements in the Adriatic and of what Venice indeed owed to Slavs who became her subjects, a fact well attested by such other maritime historians as Dr Sottas.

J. DE C. I.

THE LIVERPOOL SLAVE TRADE

I came across a book called *The Stranger in Liverpool*, 'printed and sold by T. Kaye', published, my edition (the sixth), in 1820. It contains some fine prints of Liverpool as it then was, and a map, and in its account of the trade of Liverpool it describes without any suggestion of an apology how Liverpool had in the previous century virtually ousted Bristol from the slave trade, 'the economy of her merchants in this trade enabling them to sell their slaves (in the West Indies)

four or five pounds per head lower than London and Bristol, and at the same time to afford themselves equal profit. . . and to such an height had the African trade of the town advanced at this time that more than one-fourth of the shipping belonging to her port sailed to the coast, and she had more than one-half of the African trade of the whole kingdom. Such were the circumstances which laid the foundation of the commerce of Liverpool; circumstances which, having furnished her with ships, money and credit, enabled her, after they had ceased to exist, to prosecute her interests. . .'.

It is always a source of satisfaction to people in all parts of Ireland that, about half a century before the publication of this book, the merchants of Belfast, when invited from Liverpool to participate in the profits of the slave trade, refused to do so. J. DE C. I.

EL LLIBRE DEL CONSOLAT DE MAR

The *Llibre del Consolat de Mar* mentioned by Mr William Senior in his article on the History of Maritime Law (*M.M.* November 1952), was republished in Barcelona in a very pleasant edition in 1930, no doubt after the death of Mr Senior, during the brief period when classics and other works in the Catalan language were being freely published and the Catalan language itself was flourishing. The publisher was Barcino, and an illustration of a ship (a carrack) was reproduced on the title-page from the edition printed in Barcelona in 1518. This edition of this very famous work can still, I understand, be obtained in some foreign-language book-shops in Britain.

The introduction to the Barcino edition lists seven manuscripts of the Consolat then in existence, of which the oldest is said to be the Majorcan codex of Sant Pere, of the thirteenth century.

A very interesting introduction, which cites most of the authorities mentioned in Mr Senior's article, concedes to Pisa the honour of having been in the twelfth century the first western European state to issue a code of maritime laws, the 'Constitutum Usus'. It disputes the authenticity of the texts of maritime codes from Trani and Amalfi, said to be older, and makes a good case for Barcelona and Marseilles having very soon after Pisa issued their maritime codes. The main argument of the introduction is that the Consolat de Mar is of Catalan origin, which is what Mr Senior says too, and based on the laws of Barcelona of 1258. This, incidentally, was the period of the great flowering of Catalan culture, which is of further interest for maritime historians in that one of the leading figures was the pioneer of humanism, Lull, who wrote a treatise on navigation, which has, alas, perished. J. DE. C. I.

A DANISH MONUMENT TO ENGLISH SEAMEN

Trinity House has received a letter from a Miss L. M. Kinder suggesting that attention might be drawn to the care which has been bestowed by the Danes on a monument at Maarup on the west coast of Jutland to the memory of 200 mariners who were drowned when the British frigate *Crescent* foundered on the coast in 1808. Ed. *M.M.*

DRAKE'S GAME OF BOWLS

The sight of a 'wood' of the type supposed to have been used at the famous game of bowls on Plymouth Hoe at a recent exhibition of Drake relics in London prompted me to look up the origins of the story. None of the contemporary accounts mentions the game, and it is significant that the account most directly inspired by Drake (Ubaldino's second version, recently edited for the Navy Records Society by Mr Naish) stresses the importance of getting to sea as quickly as possible after Fleming had arrived with the news that the Armada had been sighted.

In 1620 there appeared a pamphlet signed T.S. (Thomas Scott of Utrecht, a preacher related to the Earl of Strafford according to the 1809 reprint in *Somer's Tracts*) which was entitled 'Vox Populi, or News from Spain'. It purports to be a translation of a Spanish account of

Gondomar's nefarious activities in London. It says nothing about Drake, but makes some interesting criticisms of the state of the Navy in James's reign, for example, 'if ever we doubted their strength by sea, now we need not; there are but few ships or men able to live in a storm, much less in a sea fight. . . .If my Master should resolve upon an invasion, the time never fits as at present.'

The first part of 'Vox Populi' seems to have been suppressed immediately, but a second part appeared in 1624: 'Vox Populi, or Gondomar in the likeness of a Machiavel in a Spanish Parliament. Wherein are discovered his treacherous and subtile practises to the ruin as well of England as the Netherlands. Faithfully translated out of the Spanish by a well-wisher to England and Holland. Printed at Goricum 1624.' In this the Duke of Braganza, supposed to be speaking in the Cortes, says 'Did we not, in 88, carry our business for England so cunningly and secretly, as well in that well-dissembled treaty with the English near Ostend, as in bringing our Navy to their shores while their commanders and captains were at Bowls upon the Hoe of Plymouth; and had my Lord Alonso Guzman, the Duke of Medina Sidonia, had but the Resolution (but, in truth, his commission was otherwise) he might have surprised them as they lay at anchor.' The first part of the pamphlet was twice reprinted, in 1659 and again at the time of the Popish Plot in 1679, to whip up anti-Spanish feeling. But the second part did not appear again until the antiquary Joseph Morgan reprinted it in 1731 in his periodical collection of scarce tracts entitled 'Phoenix Britannicus'.

So much for the game, which has always seemed to have been a possibility and can thus be traced back to living memory; but what about Drake's reply, so strange under the circumstances: 'There is plenty of time to win the game and beat the Spaniards too.' (I give the version in Tytler's *Life of Raleigh*, 1835, quoted in Barrow's *Life of Drake*, 1843, which is the basis of all subsequent biographies.) In 1736 William Oldys, a friend of Morgan, who possessed a fine library in which Morgan probably found most of the tracts he reprinted, published his *Life of Raleigh*. In this he refers to the 'Phoenix Britannicus' and adds 'the tradition goes that Drake would needs see the game up, but was soon prevailed on to go and play out the rubbers with the Spaniards'. From these small and somewhat dubious origins has developed the most popular story in English naval history.

CHRISTOPHER LLOYD

QUERIES

6. Wars in South America. Does any account exist of the naval river operations in the upper Paraná and Paraguay rivers during the war between Brazil and Paraguay, 1865–70? What is the name of a work (published about 1900) by Hannay dealing with, among other matters, naval warfare between Chile and Peru, 1879–92? E. A. M. LAING

7. Hammocks. Can anyone quote the date (or approximate date) at which hammocks were first issued officially to ships of the Royal Navy? Though the use of the hammock must have become increasingly general among seamen, from the time when Columbus noticed their use by the natives of the Bahamas, I have not yet come across an order officially adopting them and regulating their issue to ships of the Royal Navy. I find a 'hammacco maker' on the establishment of Plymouth Yard in the year 1711, and in March of that year the officers of Portsmouth Yard complain that, out of the total number of 'hammaccos' issued to the *Chichester*, 120 have been cut up and made into 60 double hammocks for the warrant and petty officers of the ship, which has now indented for 60 more to make up the balance. When were hammock nettings, for stowage, introduced? R. D. M.

8. Tête de more. Are English or other foreign equivalents known? In French, *tête de more* meant, in a relevant context, the cap, with an open piece forward, which held the seventeenth-century hinged flag-staffs against the corresponding spar or against the taffrail. (It was also called *chouquet du bâton de pavillon*.) G. R.

9. Clipper built. Although the general meaning of *clipper built* is well known enough, its implications seem to be at variance. Young's Dictionary (1863) says that a ship is called *clipper built* when she has a clipper bow; on the other hand, in an advertisement of the Australian packet *Chaseley* in *The Times*, 12 August 1852, she is depicted as clipper built but described as a 'frigate.' Does not this mean that she had the old-fashioned stern and head? If so, which are, respectively, the proper and exceptional uses of *clipper built*? G. R.

10. Booby. American scholars (*Century Dictionary*, New York, 1889; Berrill, *Natural History*, October 1950) derive the English *booby* from the Spanish *bobo*, of the same meaning. It would thus come from the name applied to the gannet bird, that is from Hispano-English maritime intercourse in the sixteenth century. I would have favoured the opinion that *booby* was older than that, because, in dialectal French *bobé*, of the same meaning as *booby*, is found in company with words left from the English occupation during the Hundred Years War. But the *N.E.D.* does not trace *booby* beyond 1599. Have earlier instances of the word been traced in English? G. R.

11. Spar torpedo. How did the spar torpedo work? An account of its use in the American Civil War (in 1864 by a Federal vessel against the *Merrimac* type ironclad *Albemarle* in Albemarle Sound, N. Carolina) says of the officer in charge of the weapon, 'When he felt it strike, he pulled the string; the torpedo exploded. . .'. At a later stage, in the Russo-Turkish War, 1877–8, an account of an attack by Russian torpedo-boats on the Turkish monitor *Seifé* says: '. . .spar torpedo touched the *Seifé's* side just forward of her stern post. As the circuit was completed automatically, the torpedo exploded. . ..' Presumably by now the spar torpedo was electrically fired. Are there any accounts of the development of this weapon? E. A. M. LAING

12. 'Knots per hour.' It is generally accepted that it is the height of ignorance to talk of 'knots per hour'. But has this always been the case? I have recently read two books published in the second half of the nineteenth century wherein speeds of ships are often referred to as 'knots per hour'. The books are *Ironclads in Action* published in 1896 and *Our Ironclad Ships* of 1869. The author of the one was H. W. Wilson, who, I understand, was a well-known naval journalist,

nd the other, Sir Edward Reed, who, in his day, was Chief Constructor of the Navy. Neither ould reasonably be expected to err in a matter of this sort. In *Ironclads in Action*, the author ometimes refers to knots as a measure of distance, e.g. Vol. II, p. 235: '... the *Royal Sovereign* teamed to Gibraltar, 1081 knots, in seventy hours, burning 487 tons of coal'.

Could any member clarify this? I have always been taught that knots meant 'sea miles per hour'.

E. A. M. LAING

13. Origin of the periscope. Can somebody please inform me when and where the first periscope was fitted in a submarine, by whom it was invented and in general anything about early efforts to try and equip the crews of submarines with a method of seeing surface objects?

J. DE C. I.

14. Early Spanish sea terms. Information would be appreciated as to the meaning and etymology of the following Spanish early seventeenth-century terms: *cambuco*, *catur*, *celota*, *herrada*, *jelua*, *manciba*. The context shows that they refer to some type of boat. They appear in the *Viaje del mundo* by Pedro Ordóñez de Ceballos and are evidently of Oriental origin.

H. C. WOODBRIDGE

15. Yacht *NANCY DAWSON*. Information is sought regarding the Royal Thames Yacht Club yacht *Nancy Dawson* which joined H.M.S. *Herald* and H.M.S. *Plover* about May 1849, and was engaged in exploration work in the Behring Straits region in connexion with the expedition in search of Sir John Franklin. She was owned and commanded by a Mr Shedden, formerly a mate in the Royal Navy, and was the first yacht to circumnavigate the globe. She was also the first vessel to double Point Barrow. The owner died at Mazatlan about the end of 1849 and it is believed that the yacht was then sold. Any information about the vessel or any member of her complement would be appreciated.

D. J. RITCHIE

16. Marmalade as an emergency ration. In his splendid nautical novel *Foul Play*, Charles Reade relates the incident of the people in the open boat after their ship has been abandoned. Having foreseen that the ship was going to be scuppered, the young parson hero has thoughtfully provided himself with certain surreptitious supplies. He wakes the beautiful heroine in the middle of the night and puts between her parched lips what she is surprised to find is a spoonful of delicious marmalade. In a recent and highly controversial publication of a renowned admiral's diaries, ridicule is thrown upon a well-known other admiral of the Old War (1914–18) in regard to his inspection of a trawler. He is portrayed as asking some old 'T. 124' stoker in the engine-room, Where does he keep his marmalade? Nothing is lost in getting a good laugh out of the situation and the admiral is made to look extremely foolish. As it happens I served on the staff of the ridiculed admiral, and though he might be what the intelligent other admiral considered ignorant and stupid, he was at all events kind-hearted, energetic and efficient. He surely would not be *so* stupid as to suppose the engine-room was a place in which to stow marmalade; he was evidently asking a routine check-up question to see if the emergency orders were being carried out, in the same way as one might check up on the whereabouts of life-belt or gas-mask. Was there any order in the Old War for the issue of marmalade as an abandon-ship ration? No doubt marmalade would be full of the necessary vitamins and has special anti-scorbutic qualities.

E. WADE-KILLICK

ANSWERS

10. (1952.) GALWAY HOOKER. Mr Frank G. G. Carr referred to this craft in the Society's Annual Lecture of 1934 (see *M.M.* Vol. 20, p. 144). F. GILLILAND

14. (1952.) H.M.S. *VIXEN*. The beam of 20 ft. 11½ in. given by me in my previous answer was taken from the list of men-of-war compiled by Commander Rupert Jones; I suspect T.D.M.'s source was the same. In any case it is evident that Commander Rupert Jones gave the depth by mistake for the beam, which should be 36 ft. The two figures appear in adjoining columns in a list of 1830–46 which I lent to Commander Rupert Jones at one time. R. C. A.

16. (1952.) PORT AND STARBOARD LIGHTS. I believe side lights were in *private* use by certain steamship companies in the early 1840's, and that red was then shown to starboard, and green to port. Later on, about 1850, or a little before, the Admiralty obtained a ruling and the lights were standardized in their present arrangement.

I have seen old-time instructions which seemed to indicate that side lights were kept trimmed and exhibited (by hand) from the paddle-boxes when necessary. C. E. KENDALL-CARPENTER

21. (1952.) SHIPS' COMPLEMENTS. I found the following transcript in a small and probably rare book entitled, *Man-of-war life: a boy's experience in the United States Navy during a voyage around the world in a ship of the line*, published by Milner and Sowerby, Paternoster Row, 1867. From internal evidence the date of the voyage was between 1845 and 1850. I think one may presume that in such matters, practice was much the same in similar ships of all navies except that British ships were as a rule not so heavily manned as foreigners, and so our guns may have been served by fewer men.

> Next comes the division into gun's crews. Our vessel, altogether rated only as a seventy-four, had one hundred guns mounted, making a broadside of fifty guns. These guns are numbered, beginning at the foremost one on the lower deck, and counting the two opposite as only one. Thus, with us they ranged from gun number one on the lower deck, to gun number fifty, in the commodore's cabin. A certain number of guns are included in a 'division', which is under the command of a lieutenant, assisted by midshipmen. We had eight divisions: three on the lower gun deck, three on the main gun deck, and two on the spar deck. To each of the guns is assigned a 'crew', sufficient, if necessary, to work or serve both the guns included under one number, but with their labor so divided as to very much assist one another, while serving only one side. To one of our heavy thirty-two or sixty-eight pounders, were allotted one captain, one second captain, two loaders, (first and second), two rammers and spongers, four side tackle men, five train tackle men, and a powder boy—in all sixteen. The carronades, on the upper deck, being much lighter guns, had a much smaller crew—only ten. The captains have the general management of the gun, the first captain taking precedence, and, if both sides are engaged, remaining with the first part, on the starboard side. The duties of the loaders, rammers and spongers, are sufficiently declared by their titles. The side-tackle men manage the tackles by which the gun is run out, (after it is loaded,) and slewed, or turned either forward or aft of the beam; and the train-tackle men work the tackles by which the gun is run in, and also assist with handspikes in elevating or depressing the muzzle, to alter the range. The powder-boy is furnished with a leathern bucket, having a tight fitting lid; in this bucket he carries cartridges from the magazine hatch to his gun. A portion of the topmen and forecastlemen are stationed as *sail trimmers*; and aided by the crews of the spar deck guns, make, take in, and trim sails during action. In addition to the duties above specified, each individual of the gun's crew is attached to one of three divisions of boarders, or is a pikeman, or a fireman, and when in time of battle a signal is made, by a peculiar roll of the drum, or by a rattle, or by ringing the bell, promptly moves to the point where his services are just then required. G. B. NICHOLSON

27. (1952.) GABERT. In his derivation from *gabare* (Fr.) Mr J. A. Stewart follows Jamieson's *Dictionary of the Scottish Language* which cites the Scots word from the *Old Statistical Account* 1795) for Kilfinan, a parish at the mouth of Loch Fyne: '. . . but those who take a great cargo of coals) and employ gaberts, get them a little cheaper'. The word was generic on the west coast for any small coasting cargo craft to describe employment rather than hull and rig, which doubtless varied from period to period. Smacks carrying coal to and sand or gravel from Arran as late as 1908 were called gaberts. I think even puffers were so called by older folk. Incidentally, as readers of *Para Handy* will remember, the *Vital Spark*, a puffer, was carrying a farmer's flitting (household removal), including the unfortunate cockatoo, down Kilbrennan Sound in the chapter entitled 'An Ocean Tragedy'. A. R. C.

I have never seen a vessel of this sort on the Clyde or west coast of Scotland. I think steam and the internal combustion engine are responsible for their disappearance. I knew the coast from 1904 to 1939; to-day sail is practically extinct except for small inshore fishing vessels; the tradition of sail is kept alive by bona-fide yachts, a word which I interpret as excluding craft that receive money for passage or smuggling. *Chamber's Dictionary* defines *Gabbart* as 'a flat river vessel with a long hatchway.' The 5th edition of the *Sailing Directions* for the West Coast of Scotland dated 1902, states: 'Loch Eil is seldom frequented by anything larger than gabarts, flat-bottomed craft which ship wood at the head of the loch.' I think this means a craft making short passages, or used for taking timber to a larger vessel lying off shore; this is the only place where I have seen the word used, but when I visited it about 1930 there was no sign of gabarts.

In old days schooners could frequently be seen on this coast, and in the *Royal Cruising Club Journal* for 1926 I recorded that Captain MacDougall had informed me that he had seen fourteen sail at anchor in Port Ellen. Mr Stewart refers to the Arran gravel smacks; these were handy vessels carrying 20 to 30 tons, but I think they were only to be seen in the Firth of Clyde.

The librarian of Magee University College, Londonderry, told me that the word *gabert* is an obsolete form of *gabbart*, and derives from the Italian *gabarra*, a lighter or store-ship. In recent times its use has been chiefly Scottish. The *O.E.D.* defines it as a sailing barge or a lighter. The various forms of the word have been:

Sixteenth century	*gabart, gaber.*
Seventeenth century	*gabard, gaboard, gabbord.*
Seventeenth to nineteenth century	*gabbard.*
Nineteenth century	*gabarre, gabbert, gabert.*

My only further information comes from a French encyclopaedia which illustrates a *gabarre* as a sailing vessel similar to a modern fishing trawler. F. GILLILAND

28. (1952.) 'RIGGED ACCORDING TO LAW'. Under the various Smuggling Acts, vessels of certain builds or rigs which, having spirits or wine on board, were found anchored or hovering within prescribed limits, were liable to forfeiture unless they carried a licence. It appears that the Acts applied only to fore-and-aft rigged vessels which were not fitted with a standing bowsprit. To avoid forfeiture the bowsprit was to be no longer than two-thirds the length of the vessel, to steeve at least two inches in a foot, and its heel to be secured by an iron clamp bolted to the deck, without bitts. In addition the jib-stay was to be fixed, and its size at least 2-in. rope for a vessel of 20 tons, increasing by half an inch for each additional 10 tons. No traveller or flying jib was permitted on the bowsprit.

Vessels used solely in rivers and inland navigation were exempt from the Acts, but it is doubtful if this category would include Thames barges, which were capable, and accustomed, to making voyages in the estuary and further afield.

The acts also laid down regulations which affected the proportions and scantlings of vessels, particularly open craft. It would be interesting to know how far legal requirements affected the trend of design. W. SALISBURY

REVIEWS

Imago Mundi, No. viii. Edited by Leo Bagrow. English Agents: Henry Stevens, Son and Stiles.

This is the eighth issue of the periodical founded by Dr Bagrow to promote the study of old maps. It is an international undertaking, edited in Stockholm, sumptuously produced at Leiden and printed in English. The illustrations are of the highest quality and the historical data collected from all parts of the world are treated with the most exact scholarship. Though essentially a publication for experts, even those with but a slight acquaintance with this fascinating subject will find it of great interest. Professor E. G. R. Taylor writes with her customary clarity and verve about the astronomer's south-pointing needle, as distinct from the mariner's north-pointing needle. She reminds us that 'it took the combined pull of the nautical chart and of Ptolemy's newly recovered maps to turn the *mappa mundi* through a right angle at the Renaissance', so that we now take it for granted to find North 'at the top' of the map, whereas the medieval cartographer preferred the East on account of the Second Coming, and the astronomer the South. There are also valuable articles on the huge *Novus Atlas* of Janssonius and the few but important maps of Francesco Rosselli. Since the Rosselli are extremely rare, it might be worth studying the two maps signed 'F. Rosello' acquired by the National Maritime Museum in 1947 (presumably nos. 9 and 10 in the author's list). To the amateur eye these beautiful little charts, a planisphere brightly coloured in blue with delicate gold lines and lettering, and a nautical chart of the world showing the results of Columbus's last voyage, appear to be manuscript maps, though it may be that the colour has only been applied thickly over woodcuts. Only an expert could tell whether this is so, and it is to be hoped that someone will address himself to the problem in the next issue of this periodical. C. C. L.

Decorative Printed Maps of the 15th to 18th Centuries. By R. A. Skelton, F.S.A. Staples Press. Price 73*s.* 6*d.*

If any member is looking for a handsome present worthy of an admiral or a brigadier, then here it is; an adornment for any cabin, tent, study or drawing-room. Indeed it is a gift which any service wife may make to any service husband, secure in the knowledge that he will browse over it for hours at a time until it is wrested from him by the younger members of the family. For there is nothing so fascinating as old maps, more especially to those who have travelled. This is how 'Gib' looked in the days of Queen Anne, and here is the water-front of New York, with its windmill and flag-staff, when for a time it was a Dutch possession. For it was the pleasant custom of the old map-makers to add vignettes of the more striking scenes in the countries depicted, or perhaps of the costumes of the natives, or even of the surveyors actually at work. The oceans and seas, besides, are rarely without ships, from a low-waisted medieval cog being wrecked off Malta to the three-masters of Captain Cook's day at anchor in New York harbour. The selection of names, and the legends on the maps themselves, are also not without a touch of romance. The cartographer of 1530 was probably right, when having room for only two place names in the Channel Islands he chose Guernsey and—the Caskets! And what a scene is conjured up by the laconic inscription in John Rocque's neat copperplate, covering just the spot of the present-day orators' corner in Hyde Park: 'here soldiers are shot'. They were spared the Tyburn felon's gibbet, which still stood (the map is of 1746) not many yards away.

But the eighty-four maps, charts, plans and prospects (many of them in full colour) are not the only good things in this lavishly produced book. An ample text written by the superintendent of the British Museum Map Room is carefully designed to answer all those questions which (as

experience has taught him) people are most prone to ask about old maps. How does one date a map? How value it? By what process was it made? What can be learned about the history or importance of the map-maker, map-seller, surveyor, engraver or patron whose name it bears? For the connoisseur there is a chapter on the Map as a work of art, and a brief history of map-collecting; for the student, too, there are a general and eight specialized Bibliographies, all most carefully compiled and up-to-date, enabling him to follow up any branch of historical cartography at will. The whole of the Introduction should prove also of value to the historian at large. Maps have suffered neglect as historical documents, for the very good reason that it is dangerous to accept them at face value. But properly understood and carefully used they can carry weight as source material, and here will be found (although the author, Mr Skelton, does not make the point) sufficient guidance to enable the trained historian to avoid the major pitfalls and use the map critically as he uses the written word.

The book is not completely new. About a quarter of a century ago it was issued as *Old Decorative Maps and Charts* with an introduction by A. L. Humphreys. But those were the days when old maps were classed among 'antiques' as a species of bric-à-brac, pretty decorative bits and pieces suitable for making into lamp-shades or pasting on screens. Fortunately, such vandalism is now rare, for there is a wider interest in and fuller understanding of the records of the past. As a result, Mr Skelton's scholarly essays have been substituted for the pleasant gossipy introduction to the earlier issue, while the number of maps has been greatly enlarged so as to provide a clear picture of the general lines of development of the printed map both in subject and in technique. The account closes before 'the Ordnance Survey and the Hydrographic Department of the Admiralty took up the running', but a high standard had been set, and English maps, whether from the Army or the Navy, still excel.

E. G. R. TAYLOR

Manual of Seamanship, Vol. II. London: Her Majesty's Stationery Office. 1952. Price £1 net.

Volume I of the Manual was reviewed in these pages in February 1952, and we take the earliest opportunity of apologizing to the editor and publishers for having criticized the omission of the 'Rules of the Road' and coloured diagrams of ships' lights. These are thoroughly dealt with in the new volume; one can only plead that it was not foreseen that they would appear later; but as Vol. I is intended for cadets and boys in *shore* establishments, it must be conceded that there would not be much point in teaching these rules earlier. As if to make amends for the muddle in the 1932 *Manual*, the new Vol. II takes pains to print the existing (1910) Regulations in full, and then as an Appendix to set out the new Regulations, which the Government of the United Kingdom has since announced will come into force on 1 January 1954. It is carefully explained in both places that the two sets are distinct. There are eight pages (in both places) of excellent multi-coloured diagrams of ships' lights in every circumstance likely to be met with. In addition there are some clever sketches to illustrate the steering and sailing rules.

The new book is intended for junior officers, petty officers, and men qualifying for advancement. What was said in praise of Vol. I must be repeated in respect of the second volume, but much more so. Besides the many plates of flags and lights in colour, there is the same great wealth of clear and interesting pictures in black and white. Some amusing figures are used to illustrate the postures and gestures of a man giving hand signals for working a crane or derrick, and to direct boats alongside. There are more than 850 pages, and here again one cannot see how the book can be a paying proposition, sold to the public for only £1!

All matters of seamanship appertaining to a modern ship and her boats are exhaustively dealt with, but there are also valuable chapters on compasses, latitude and longitude, charts, tides, the solar system, the stars, the weather and meteorology. In the very comprehensive and informative chapter on Anchors and Cables it is noticed that the sheet anchor has been restored in the latest capital ships; it is supplied to the *Vanguard* and to the *Illustrious* class of carriers though not to the *King George V* class or any cruisers. The length of a shackle of cable is in course of being

changed from 12½ fathoms to 15 fathoms, thus bringing it into line with merchant service practice. The length of a hempen cable in the old days was 100 fathoms (more or less), and when chain was introduced it was supplied to the bower anchors in eight shackles of 12½ fathoms each, so maintaining the length of a ship's cable, while the tactical cable's length amounted to the same figure of 100 fathoms, or 200 yards or a tenth of a sea-mile. It is not clear how many shackles of cable will now be in a length of cable; it would seemingly be longer than the traditional tactical 'cable's length'. An entertaining, and historically valuable, innovation is the description of capstan bars and the proper method (with diagram) of passing a swifter. Another old friend illustrated is heaving the log, modernized by the recorder using a stop-watch instead of the archaic sand-glass.

There is not space to describe in detail the various chapters on scientific developments at sea; we can only recommend members to buy this book for themselves; the outlay of £1 will ensure many hours of education, absorbing interest and amusement.

All About Ships and Shipping. Edited by Edwin P. Harnack. Ninth edition, 1952. Faber and Faber Limited. Price 25*s*.

The eighth edition of this work was published in 1949 and came in for some pretty rough handling by the seafaring Press critics, not without good cause it is true to say. An 'Editor's Note' stated that he would appreciate attention being drawn to any error that might be noticed. A very large number of errors *were* noticed in the various reviews but this does not seem to have influenced the succeeding edition very much. A chronometer is still stated to be 'neither more nor less than a very superior watch'; signal matter obsolete about twenty years ago is still hashed up; the difference between a hawse-pipe and a navel-pipe is still apparently unknown; and good conduct badges in the navy are still called stripes. One reviewer complained that the very extensive fleets of the Anglo-Saxon Petroleum Company and the British Tanker Company were not included in the section devoted to the Principal Shipping Companies. This does not seem to have penetrated to the compilers of the new edition, and these most important fleets are still omitted.

The statement that the book is fully revised and brought up to date is just not true, and although three years have been available for repentance, the old howlers persist, and some new bloomers occur because recent developments have not been followed. For instance, the rank of warrant officer has been abolished in the Royal Navy, and there is now no difference in the signal flag alphabets used in the Royal Navy and the Mercantile Marine, since both are the same. There would have been plenty of time to include such alterations in the present edition.

It is ludicrous to compare the price charged for the Admiralty Manual (above) and the price of the book now reviewed.

Sailing Drifters. By Edgar J. March. Percival Marshall and Co. Ltd. Price £3. 3*s*.

Probably many members of the Society for Nautical Research have thought at some time or another, when studying some distant period of maritime history, if only the writers and seamen of that time had put down on paper more about their ships and their lines, how many abstruse and difficult points would now be clear. At any rate the nautical historians of the twenty-first century will not be able to say or think that about the closing days of sail, for surely never had a subject better literature than this, and this latest book by a member of the Society, Mr E. J. March, is one of the best. But it is only just in time; already several of Mr March's informants have departed this world before the book to which they had contributed could be printed.

Sailing Drifters is a first-class book, and the time and labour that the author must have expended on it, prodigious, but it has been more than worth while. The result is a volume which covers practically every field of the sailing drifter's work and shows in detail how this type of vessel was operated both at sea and from the shore end. Mr March carefully explains the small differences

whereby the boats from different localities could be recognized, and the variety of ways the numerous types of drifters worked their gear and got their fish; he also gives details of how the vessels were built so that it is possible to follow the career of a drifter from the time her keel was laid to the time she was launched and started to earn her keep at sea, and then how she actually did earn it. This book has thirteen chapters and 191 photographs, also 28 plans, many drawn by the author himself, and to finish there is a glossary of terms connected with fishing and fishing vessels. Chapter I traces the history of drift-net fishing and tells of the rivalry between this country and the Dutch, especially in the reign of James I, when the Dutch regularly sent over a huge fleet for the herring fishery off Shetland under the protection of the Dutch Navy. Chapter II is also historical in that it shows the development of the lug-sail from the days of the baggy square sail set amidships to the beautifully cut lug foresail of the St Ives mackerel drivers of the years just before the Old War (1914–18). Chapter III describes how drift-net fishing is carried out and also how the nets are made, and what material is used and how much they cost. The ensuing chapters tell us about the boats themselves of the various districts, starting with Yarmouth and Lowestoft on the East Coast, and going south and west about, finishing up with the fleets of Whitby and Scarborough. Not only have all the principal drifter fleets been included, but they have been described in the greatest detail, and it is difficult to see what any other book on this particular subject in the future can say that has not already appeared in *Sailing Drifters*.

In addition to the numerous excellent photographs and plans, previously mentioned, the author has drawn a number of detail sketches of gear, boat fittings and the lead of parts of the rigging, etc.; these sketches are excellent in themselves, and, as far as can be seen, very correct, but several are too small and are therefore not clear enough to show the detail they were meant to. A particular example is Fig. 56, which surely would not show anyone how a West Cornish foresail is dipped, who did not know before. Incidentally the vessel depicted is called a Penzance lugger; the more correct term would have been a Mount's Bay lugger; the Mount's Bay fleet was made up of vessels from Mousehole, Newlyn and Porthleven, but not from Penzance although all the boats were registered at Penzance. Fig. 56 is not the only one that is too small, but it is the most conspicuous example. Probably it is the old matter of costs that has enforced a miniature reproduction, and it is really no one's fault, but it is a pity; otherwise there is nothing but praise for an excellent book, which is a very great credit to the author and also to the publisher as it is exceedingly well produced. An expensive volume but well worth the price in every way. N. R.

An Episode in the Spanish War, 1739–1744. By Lt.-Col. The Hon. Arthur C. Murray, C.M.G., D.S.O. (Viscount Elibank), with a preface by Admiral Sir William M. James, G.C.B. Seeley, Service and Co. Ltd. Price 10*s*. net.

Vice-Admiral Boyle Somerville, in his book *Commodore Anson's Voyage round the World* published in 1934, stated that Captain George Murray of the *Pearl* and Captain Edward Legge of the *Severn* deliberately and concertedly deserted Anson when the squadron was rounding the Horn during the great gale in April 1741, supporting the charge by a quotation from Pascoe Thomas's diary that 'they seemed to me to lag designedly'. In 1935 Lt.-Col. Murray wrote to Admiral Somerville asking if he could produce any further evidence in support of the grave charges against these two officers.

The book now under review, after an introductory sketch of Lord Anson and of his voyage round the world, reproduces the correspondence between Lt.-Col. Murray and Admiral Somerville. The author also quotes from the captain's logs of the *Pearl* and *Severn*, in the Public Record Office, and cites a letter from Mr Frank G. G. Carr commenting on the log of Lieutenant Innes of the *Severn*, now in the National Maritime Museum. This log is reproduced in facsimile for the period 10 to 25 April 1741. A chart showing the noon positions of the *Gloucester* and *Pearl* from 9 to 19 April, plotted from the logs by Commander W. E. May of the National Maritime Museum, is appended.

The letters from Admiral Somerville offer no convincing evidence in support of his charges but, from the evidence afforded by the logs, it is clear that the failure of the *Severn* and *Pearl* to keep touch with the squadron was due to the damaged state of the ships and the extreme sickliness of their crews. It is worthy of note that the *Severn* and *Pearl* continued trying to work to the westward for seven days after losing touch with the Commodore.

In defending the honour of his ancestor the author has added something to our knowledge of this interesting voyage and it is hoped that his book will be widely read by students of naval history. The volume is pleasantly produced and the illustrations, which include some interesting and little known portraits, are particularly well chosen. L. R. RUST

Generals and Admirals. By Captain John Creswell, R.N. Longmans. Price 18*s*. net.

This is a masterful study of amphibious operations throughout the centuries from Howard and Essex at Cadiz in 1596 to the operations in the Pacific 1942–5, which deserves to be widely read by naval and military officers and laymen alike. The object of the book, as the author points out in the beginning, is not to review all the numerous amphibious operations in which British forces have been engaged, but to illustrate the command system by examples from the long list that history provides, and to indicate such changes as affected it.

Until the twentieth century the emphasis is on Joint Command operating (up to the Seven Years War) with the aid of formal Councils of War. Some examples chosen were fortunate, and others the reverse. In the unfortunate category Vernon and Wentworth at Cartagena provide an occasion when general and admiral were at loggerheads to such an extent that the point was reached when the harbour was filled with the putrid corpses of soldiers, while the bodies of naval dead were landed for decent burial. 'By this time the army would no longer ask help from the navy; and Vernon, though ever careful of the welfare of his own men, was in too savage a mood to proffer it, allowing his annoyance to override his humanity.'

Quite justifiably twenty pages are given to Wolfe and Saunders at Quebec, held up as a model of what an amphibious operation should be. Throughout the records of these operations one is impressed with the fact that success or failure hinged on the personalities of admiral and general. After the failure of the Rochefort expedition in 1757 formal Councils of War were not insisted on, and, in fact, St Vincent, half a century later, called them 'cloaks for cowards.' So great was the importance that Pitt attached to the co-operation of admiral and general as the basic requirement in amphibious operations, that, besides, his care in selecting them, he emphasized in writing how that co-operation was to be achieved. The author then quotes Wolfe's secret instructions, drafted by Pitt which end with the sentence: 'And in order to establish the strictest Union that may be, between You and the Commander in Chief of our Ships, You are hereby required to communicate these Instructions to Him, as He is directed to communicate those, He shall receive from Us to you.' Captain Creswell is quite right in his judgement that history can show few operations of war of such dramatic appeal as this campaign of Quebec, 'the far reaching event which was to hang on the ability of a handful of men to scramble in the dark up a precipitous hillside without raising the alarm'.

In the operations of Barrington and d'Estaing at St Lucia in 1778 another instance is given of harmonious co-operation with the two Services testified to by General Grant in his despatch in which he says, 'The Fleet and Army act with greatest unanimity. 'tis a pleasure to serve with Admiral Barrington, Commodore Hotham and the Gentlemen of the Navy in General. The Commodore took a fatherly care of us from New York, and brought us safe to Barbadoes, without the loss of a transport.'

Subsequent eighteenth-century operations were less happy and the author quotes the West Indies campaign of 1794 as the last occasion for many years when there was no friction between the Services. One rather wishes that Captain Creswell could have found space for the ill-fated

Quiberon expedition of 1795 as an example of difficulty of co-operating with foreign generals, although the navy on that occasion did all that could have been expected of it.

A whole chapter is given to the Scheldt operations of 1809:

> 'The Earl of Chatham with his sword drawn
> Stood waiting for Sir Richard Strachan.
> Sir Richard longing to be at 'em
> Was waiting for the Earl of Chatham.'

The ignominious failure of this operation led to an enquiry in the House of Commons. The author thinks that a little of the Quebec spirit might have achieved results in the Scheldt and points out that the appointment of a single Commander-in-Chief would have had advantages. 'But of such an appointment in the England of 1809, there could have been no thought.'

After passing over more than a hundred years, with brief mention of the Crimea, the author gives another full chapter on the Dardanelles campaign. He quotes from Sir Roger Keyes's memoirs, 'it would be impossible to exaggerate the good comradeship which existed between Sir Ian's General staff and the Admiral's Naval staff throughout our co-operation.' But a few months later at Suvla Bay it was a different story, and the author brings out that it was unfortunate that the commanders chosen for the vital part of this new offensive should have been altogether lacking in the valuable experience gained by participants in previous landings. The Dardanelles campaign ends on a note of 'uneasy relations between the naval and military commands'. There was no longer the old atmosphere of cordiality between the chief commanders. But the final evacuation was to give a faultless example of co-operation between the two Services.

In a chapter on General Eisenhower's commands the author discusses the American theory of paramount capability, and illustrates Eisenhower's system of unified command bringing out well the awe inspiring and colossal responsibility which the Supreme had thrust upon him in his decision of 5 June 1944.

Perhaps the most important part of this book lies in its final chapter and it is a pity that this could not have been embellished with reproduction of some of the maps and plans shown in the author's *Sea Warfare*.

In his chapter of conclusions the author seems unable to come down heavily on one side or the other. He appears, on the whole, to favour Joint Command, but ends the book with an envisagement of some great amphibious operation of the future which may call for some man of genius to direct it.

The writing of history is generally considered to be the outcome of a well digested study of original documents. This book is the fruit of much wide and well selected reading of the best authorities, and a good bibliography might have been included with advantage. E. H. S. J.

Clipper Ships and Packets, 1851–1853, as written by Duncan MacLean for The Atlas of Boston. Reprinted by Log Chips, Washington, D.C., 1952. (Sole agent in Great Britain, Harold T. Storey, 3 and 9 Cecil Court, London, W.C. 2, who can supply copies at 15*s*. each.)

Not everybody has the time or the inclination to wade through back numbers of newspaper files, searching for descriptions of particular ships. Yet this book reproduces such accounts exactly as they appeared in the pages of the *Atlas* between the years 1851 and 1853. The editor, John Lyman, has selected thirty-nine of these accounts, each complete in itself, describing altogether forty vessels, two of them steamers, two packets, two schooners, seven 'new ships' (full-bodied ships) and the rest clippers.

The author of these accounts is Duncan MacLean, who, though never receiving credit for them in the *Atlas*, is identifiable as being the paper's marine reporter. Elsewhere John Lyman has written that he has attributed the authorship of the descriptions to MacLean since they are so

similar to a pamphlet he is said to have written about the *Great Republic*. His claim is definitely substantiated in George Francis Train's 'Reminiscences' which is quoted in *American Clipper Ships*, Vol. II, by Octavius T. Howe and Frederick C. Matthews on p. 606, and states that 'Duncan MacLean. . . was the marine reporter for the "Boston Atlas"'.

The various descriptions in this book appear in chronological order. There is a list of contents at the beginning, and at the end an index of the ships described which also gives their date of register, dimensions and tonnages. The ships themselves are nearly all registered at Boston and many of the well-known ships of this period appear, including numerous others long since forgotten. Who, for instance, knows of the clipper ship *Hoogly*, unfortunately lost on her maiden passage? Yet she is written up in as much detail as the *Westward Ho!* or the *Sovereign of the Seas*, including a list of her spar dimensions. It is interesting to note that MacLean uses the word 'mechanic' when we should say 'naval architect'. There is a good description of Forbes's rig in the account of the *Flying Childers*, while the absence of decoration at the bows is well defined when he says that the *Wild Ranger* was 'smack smooth forward'. Every account except one describes the ships in the minutest detail from keel to truck and from stem to stern. Not only has MacLean been at pains to give a picture of the ship's beauty, her sheer and the shape of her lines, but he also enumerates in great detail the strength and sizes of all the timbers, the fittings, and of the masts and spars. All this is of the utmost value.

But what makes the book more unusual is the fact that the original text is here reproduced by photolithography from photostats of the files of the Boston *Atlas*, now in the Library of Congress. Thus the occasional creasing of the paper or thickening of the type is faithfully repeated. There is a delightful end-piece of four advertisements for ships' gear. Similar decorative pieces might well have been included elsewhere in the book. The feeling that you are reading from the original paper itself, with its pleasing style and phraseology of the day, adds great interest and vivacity to these somewhat statistical accounts and considerably enhances the value of the book. It is to be hoped that other reprints will follow from the same source.

D. R. MACGREGOR

Waterline Model Liners. By C. Swift. Percival Marshall and Co. Ltd. Price 6*s*.

As an introduction to a most fascinating hobby this book is 'the best yet'. Clear and concise instructions together with excellent and really clear drawings leave nothing to guesswork.

The author knows his subject thoroughly and takes even the beginner through by easy steps from the raw material to the finished article and to the glass show-case. Two sets of excellent plans are included, and a list of others which can be obtained from the publishers.

ARTHUR L. TUCKER

Fra Sejl til Diesel (From Sail to Diesel), Vols. II and III. By F. Holm-Petersen, A. Rosendahl and others, 1952.

The first volume of this very thorough history of the Danish mercantile marine was reviewed in the *M.M.* in May 1952. Volumes II and III bring the story up to date; steamers appear in the latter part of Vol. II and Diesel ships in Vol. III. The final volume also contains an alphabetical list of all Danish ships of more than 100 tons from 1869 to the present time with references serving as an index of ship's names in the three volumes. In the previous notice of this history it was assumed that Vol. III would make up for the lack of an index to Vol. I, but this complete list is more than we had any right to expect. Altogether the three volumes are a fine piece of work, well planned and extremely well produced.

R. C. A.

Alde Estuary. By W. G. Arnott. Norman Adlard and Co. Ltd., Ipswich. 1952. Price 12*s.* 6*d.*

This book about the Suffolk river Alde is on lines similar to those of Mr Arnott's companion book *Suffolk Estuary*, which is about the Alde's neighbour, the Deben.

It contains five maps and sixteen other illustrations; the dust-cover is an attractive coloured map of the entire river, after an Elizabethan map of 1588.

The scheme of the book is a short history of the river in its natural aspect and from the human point of view. The author fears that, having tried to combine solid research with popular history, he must have produced a dull book; he has certainly done a good deal of research, as an extensive bibliography shows, but the result is the opposite of dull.

The opening chapter shows Mr Arnott to be a yachtsman; he sails us into the river with a small summer gale behind us, no job for a neophyte but one requiring a knowledge of, and profound respect for, that shingle-banked entrance with its fierce tidal race. Being safely in, he proceeds to give us the story of this curious river from earliest times.

After a course of many miles from its source and getting within a hundred yards of the sea, the river shies away and runs a further ten miles or so, more or less parallel with the seashore before entering the sea at Orford Haven. A fine aerial photograph of the river at Slaughden and Elizabethan maps show this very well, and comparison of them proves the erosion of this part of the Suffolk coast, and consequent alteration in position of the mouth of the river from time to time, and the total destruction by the sea of the village of Slaughden in recent times. A photograph records the Three Mariners Inn and a drawing shows part of the village as it was in 1914 (1901 is a misprint).

The story carries us briefly through Roman and Saxon times, there being little evidence for these, up to the sixteenth century. Here, the author expands the theory that, although Orford was a port from early times, Slaughden was not so until Tudor times, the port for Aldeburgh previously being to the north of the town on a small inland sea entered at Almouth about a mile north of the present town; indeed, within living memory there was a tidal entrance there.

Trade, shipping, fishing, shipbuilding, etc. down to the present time are discussed, and an extinct type of fishing smack, built at Slaughden and functioning until 1914, is illustrated by photograph and pencil drawing.

Snape Priory on the Alde and Butley Priory on its tributary the Butley River were both of considerable importance until the Dissolution. In the Vatican there is a large mural map of the world, painted in the sixteenth-century with England showing only two place names, Snape and Walsingham in Norfolk. It is known that there was a considerable pilgrim traffic to Walsingham from the Continent during the Middle Ages; may not Snape have been a port of arrival or departure of pilgrims?

To those who know and love this river, Mr Arnott has written a fascinating book, full of facts without the sentiment which can always be supplied by the reader, if desired. A. WELFORD

Captain Cook. By Christopher Lloyd. Faber and Faber Ltd. Price 10*s.* 6*d.*

'Captain Cook', says Christopher Lloyd in his latest work, 'belongs with those great representatives of the "Silent Service" who are content to let their work speak for them: men like Blake and Anson rather than the more colourful heroes like Drake and Nelson.' Nevertheless Cook's achievements are such that they have made his name as familiar as that of any of the great seamen.

Of Scots-Yorkshire descent, Cook was a naturally reticent man, and as is the case with so many sailors of his time, the greater part of his life was spent at sea, and Mrs Cook seems to have been as reserved as he, so it is not surprising that comparatively little is known of his private affairs. In this small volume Christopher Lloyd has managed to tell not only the story of the great voyages,

but also most of what is known of Cook the man, as well as giving more than a glimpse of contemporary life and events.

Cook's first voyage added more territory to the British Empire than all the wars of two hundred years. In the second, Cook regarded as his greatest achievement his triumph over scurvy, when in a three years' voyage he did not lose a man from this disease. The secret lay, said Cook, in cleanliness, ventilation, dry clothes, rest (they worked in three watches), the issue of 'worts' (malt), and sauer-kraut (pickled cabbage), fresh water and vegetables whenever obtainable. In other words it was largely a matter of discipline and due to Cook's insistence on the rigid observance of regulations laid down. As to fruit juices, 'I have no great opinion of them alone', said Cook, 'although they may assist "other things"'. This unfortunate opinion assisted in delaying the regular issue of lime juice to the Navy until 1795, forty years after Dr Lind had first advocated its use.

Cook set a new standard for nautical surveys, and his charts excited the admiration of explorers of other nations. A less recognized service of his is his training of officers. George Vancouver and William Bligh served under him. 'None', says Lloyd, 'but an officer trained in Cook's school could have performed the wonderful 3,618 mile journey in an open boat that Bligh achieved.'

This excellent little volume is a fine introduction to the study of the great navigator, and a handy reference to main events. The illustrations are well chosen, and the maps clear and helpful.

T. E. CRESSWELL

Miscellanea: Vol. V. Yorkshire Archaeological Society's Record Series, Vol. cxvi. Edited by F. W. Brooks, M.A., F.S.A., 1951.

This latest publication of a learned Society which has served the interests of historians, local and national, for close on ninety years makes available now in easily accessible form some hitherto unpublished records the historical import of which will be appreciated far beyond the confines of the county to which they relate. They comprise, firstly, two collections of 'Orders' of Hull Trinity House (which ante-date those contained in the First Order Book of that body already published by the Society in 1940); and, secondly, a copy of the East Riding Muster Roll of 1584. It is the first-named of these contents which will prove of particular interest to members of our own Society.

Hull Trinity House, founded in 1369 as a religious and charitable guild, had by 1456 become largely transformed into a seamen's guild. With a membership of 'brethren' increasingly and at length exclusively drawn from skilled Humber shipmasters and pilots, its principal function to develop during the succeeding hundred years was the exercise of jurisdiction over all seafarers using the port of Hull, the House maintaining an effective and healthy discipline among them and providing safeguards for their welfare and for the prosperity of the port in general. Unlike its sister body of the Thames, however, Hull Trinity House never assumed any great responsibility for the provision or maintenance of lights, buoys, or other navigational aids.

The first of the two collections of orders (conveniently sub-titled by the editor 'Early Judgments of Hull Trinity House') affords abundant examples of the manner in which from 1582 (when the House was granted a new Charter) to 1630, its various functions were exercised: adjudicating on wage claims, ensuring priority of employment for Hull ships, and (in nowise least) affording relief to the widow and the afflicted. Some of its methods, in finance for instance, may have been rather happy-go-lucky by present standards:

Agreed that all persons having any money belonging to the House must refund it at the next audit so that the debts of the House may be discharged. (*Judgment of* 11 *March* 1587/8).

But there is no doubt as to the efficacy of its disciplinary powers:

William Porter, officer of the House, informed against Richard Bonwick, a younger brother, for 'detestable speeches against the wele and worship of this House.' Bonwick at first refused to appear but subsequently came and confessed his offence in contemptuous words. Ordered that he be expelled from the Brotherhood. (*Judgment of* 6 *November* 1592).

The sequel appears in a Judgment of 1 September 1593:

Richard Bonwick, recently disenfranchised, was readmitted a younger Brother and paid his admission fine of 3s. 4d.

Complementary to these 'Judgments' is the second collection of documents (to which the editor has given the heading 'Early Orders from the Oath and Bond Book of the Hull Trinity House') which consist substantially of a mid-sixteenth-century compilation of orders in force at that time, with later orders added as they were made. Thus there is recited 'An order for the gathering and paying of primage. 21 May 20 Henry VII' which, of course, is but a copy of the original. The later 'orders' tend to represent rather memoranda of proceedings than orders in the accepted sense. For a piquant example from the year 1614:

Ordered that Mr Smith, preacher and vicar of this parish, should be paid 25s. per quarter during the pleasure of the House. 'But it is hoped by this House and not doubted that in regard thereof he will preache oftener than of laite he hath used.'

Whether the Brethren were prepared to sit through the resulting sermons does not appear, but they were evidently determined that Mr Smith should earn his retainer!

The value of the foregoing collections (and of the East Riding Muster Rolls, though these are of lesser concern to the maritime historian) is considerably enhanced by the scholarly Introduction of our member, Mr F. W. Brooks, Reader in Medieval History in the University of Hull. The book patently owes much in presentation and interest to his skilful editing, and he has not overlooked a feature so absolutely vital in a work of this character, a clear and comprehensive index.

ALAN F. DAKIN

Records Relating to the Society of Merchant Venturers of the City of Bristol in the Seventeenth Century. Selected and edited by Patrick McGrath, M.A. A publication (Vol. xvii) of the Bristol Record Society, 1952. Issued free to members of the B.R.S. Price to non-members 27s. 6d. post free.

This latest impressive publication by a virile and flourishing historical society is the first of two volumes designed to illustrate the economic and social history of the seventeenth-century merchant community of Bristol. This first of the pair is devoted entirely to the activities of an organized section of that community, the Society of Merchant Venturers of the City of Bristol, a body which dates at least from its Charter of Edward VI in 1552, but which may have sprung from even earlier origins. The present work comprises some 500 extracts, mostly printed for the first time, from the records of that Society: its Book of Trade, Hall Books, Treasurer's Books, the Books of Charters and Wharfage Books. The period covered, largely that between 1605, when the Society was reorganized, and 1698, when the African trade was opened, was an eventful one, for it was an age of renewed expansion and of proud achievement in the annals of Bristol and one of outstanding importance in the mercantile history of that great City.

Perhaps the most colourful of the sources mentioned is the Book of Trade, a volume containing some 70 years' copy letters, agreements, bonds and other memoranda which throw into sharp relief the details of such ventures as an expedition against Turkish corsairs, colonization schemes in America, voyages of exploration and other pioneering enterprises. Of more than passing interest are some of the entries in the Treasurer's Book: the cost-of-living problems of an age which saw both the fall of a monarchy and the failure of a Protectorate, and the rise of constitutional questions consequent upon the Restoration, are perhaps reflected in the cost of the Society's Annual Audit Dinner: £8. 1s. 1d. when held at the Bell Inn in 1611, and £56. 15s. 0d. when held in the Society's own hall in 1648.

A large part of the Society's work was of a charitable and educational nature. A Merchants' Almshouse, formerly the responsibility of the Fraternity of Mariners was by the seventeenth

century being maintained by the Merchant Venturers, and the Society laid down some strict but doubtless essential rules to be observed by the 'poore marriners' and 'poore marriners' widowes' of whom its inmates continued to consist. Absenteeism without reasonable cause from daily morning or evening prayer, or from periodical 'lecture sermons', or appearance on these occasions out of almshouse uniform, entailed the payment of a 6*d*. fine, while drunkenness and profanity involved heavier penalties. The inmates were responsible for maintaining good order and cleanliness in the establishment. The Society's other charitable works included the payment from time to time of pensions or gratuities to 'decayed' merchants and seamen, and of contributions towards the ransoms of sailors held captive by the Turks. There are, too, a sufficiency of examples from the Treasurer's records to show that the Society took quite as seriously the educational side, paying, for instance, a schoolmaster to teach poor mariners' children, and a man to instruct the 'poore marriners' themselves in the art of navigation, making an allowance to a student at Oxford, and awarding a gratuity to the author of a navigational treatise. It is interesting to observe that the necessary funds to undertake all these commitments were implemented not only by charitable donations from outsiders but, for a time at least, by a compulsory and early form of 'Penny-in-the-Pound Scheme' on seamen's wages.

It was during the seventeenth century also that the Society gradually took over from the Corporation of Bristol many of the duties of a port authority, and a considerable impress has been left on its records by this aspect of its work, the construction and maintenance of quays, erection of cranes, repair of ships, surveys of the port approaches, the enforcement of safety regulations, and the control of pilots. There are extracts in this work, too, calculated to give an idea of the relationship of the Society with other organized 'Adventurers', the London Companies, the Merchant Adventurers of England, and the East India Company, for instance. The points of contact and conflict were, of course, numerous, and the examples given form but a small part of the whole picture, but they are supported by a sufficiency of helpful footnotes indicating where other and fuller material may be found.

It is indeed one of the useful characteristics of this work that although within its 270-odd pages there can only be compressed a fraction of the material available, continuity and interest are successfully maintained throughout. This is in large measure due to the admirable Introduction by the editor, Mr Patrick McGrath (who is Lecturer in History at the University of Bristol), his nice discrimination in the selection and marshalling of extracts, and his lucid editorial commentary throughout this excellently produced volume.

ALAN F. DAKIN

Vol. 10 onwards at 10*s.* 6*d.* each (postage 5*d.*). The index will be supplied free to purchasers of a complete volume or sold separately for 2*s.* each.

Details of back numbers available will be supplied on request. (Published by the Cambridge University Press, 200 Euston Road, London, N.W. 1.)

The following other publications of the Society are at present available for sale:

OCCASIONAL PUBLICATIONS: No. 5, *Lists of Men-of-War*, 1650–1700. *Part I. English Ships.* Compiled by R. C. Anderson. *Part II. French Ships.* Compiled by Pierre Le Conte. *Part III. Swedish Ships.* Compiled by Hj. Börjeson. *Danish-Norwegian Ships.* Compiled by P. Holck. *German Ships.* Compiled by W. Vogel and H. Szymanski. *Part IV. Ships of the United Netherlands.* Compiled by A. Vreugdenhil. *Part V. Indexes.* EACH PART 2*s.* 6*d.* (POSTAGE 2*d.*)

REPRINTS: *The Rye River Barges*, by Leopold A. Vidler.
East Cornish Luggers, by H. O. Hill.
The Fishing Luggers of Hastings, Parts I and II (separately), by James Hornell.
The World's First Clipper, by Boyd Cable.
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